Audio Editing
User Guide
V5.3

This manual is revision A

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Introduction to Audio

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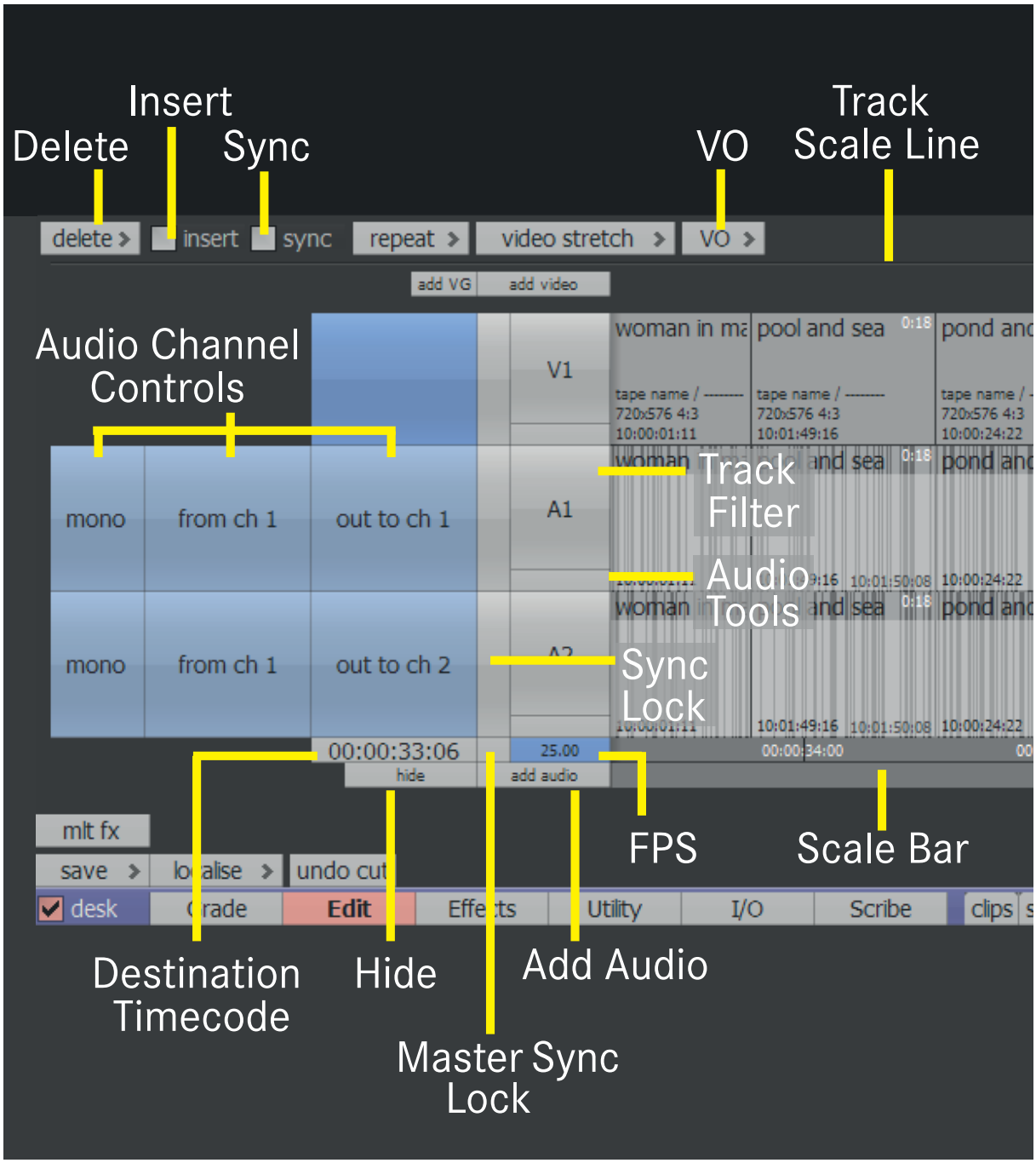
Introduction



When the Edit Application is first opened, the timeline (by default) contains 4 virtual audio tracks and one video track.

Depending on the Quantel product you are using, up to 16 audio tracks can be available on the timeline. Standalone workstations with AVIO3 or eVidIO cards support 16 channels. sQ workstations support a maximum of 8 channels (ie the maximum that the sQ Server supports). Mono, Stereo and Quad audio is supported.

Output channels can be selected using the audio channel output boxes. When a finished edit is published to a server the audio is mixed down ready to play out of the assigned ports.

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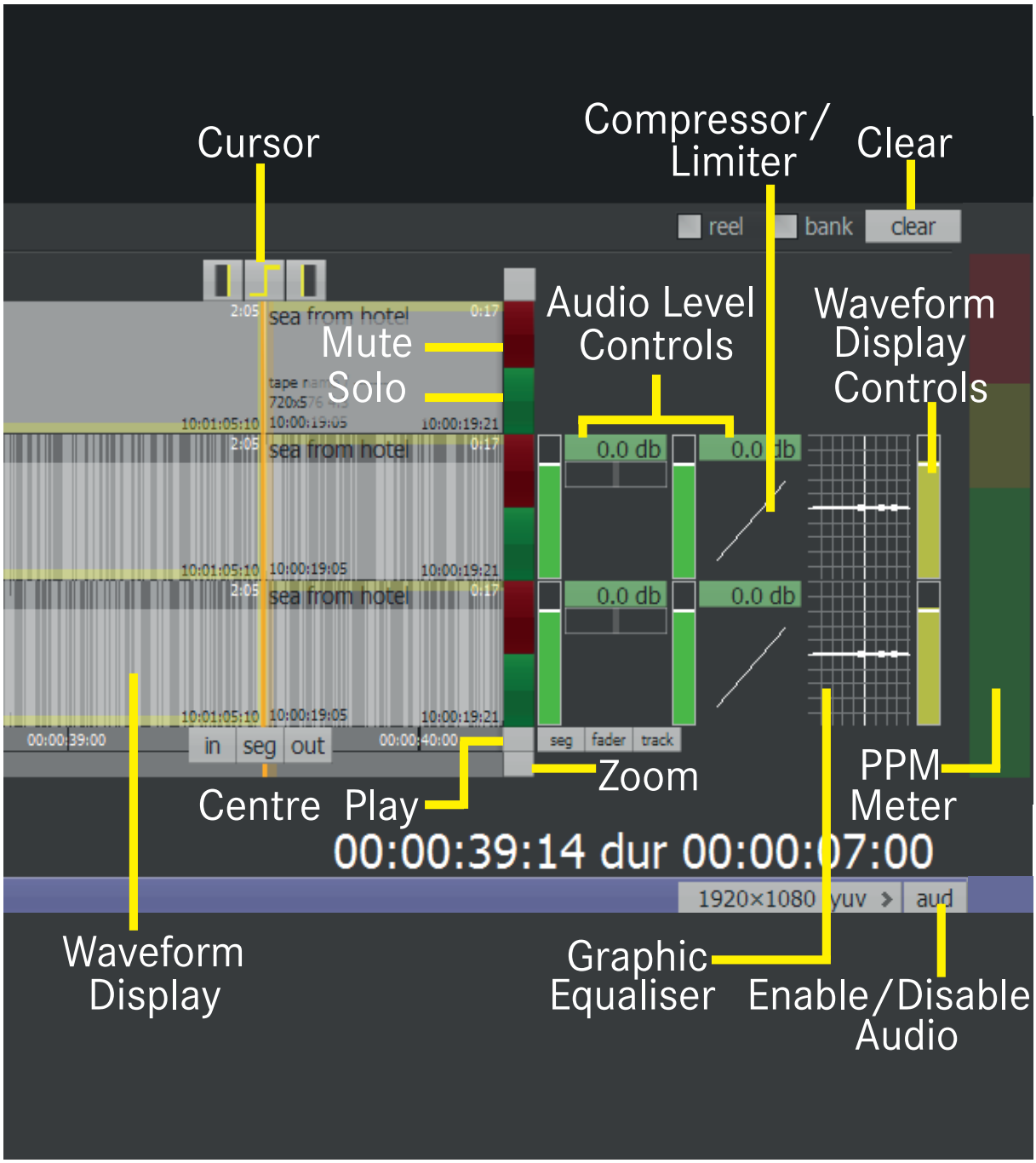
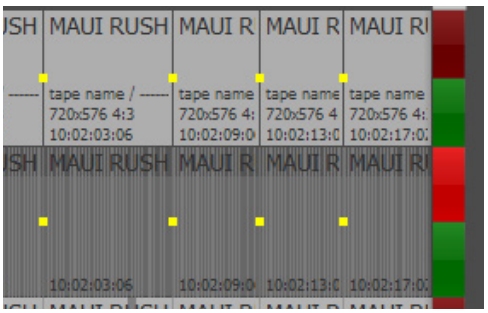


Each audio track is fully editable using the timeline. There are tools to assign audio input and output, control audio levels, edit compression levels, insert audio transitions and much more.

This guide provides information on different aspects of managing and editing audio within the Quantel software. For general information about the interface, using the timeline and overall video editing see the Desktop Editing User Guide or the Timeline Editing User Guide.

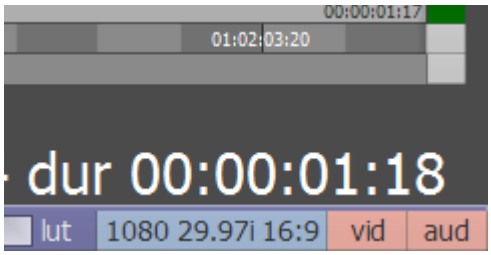
Managing Audio Output

Muting & Soloing Audio Tracks



The Mute and Solo boxes are located to the right of each timeline track. The Mute boxes (red) are used to mute specific audio tracks so that they do not contribute to the overall output whilst playing the clip. The Solo boxes (green) allow a single track to be audible whilst playing the clip. The Mute and Solo boxes do not affect the audio if the clip is saved, played-out or published.

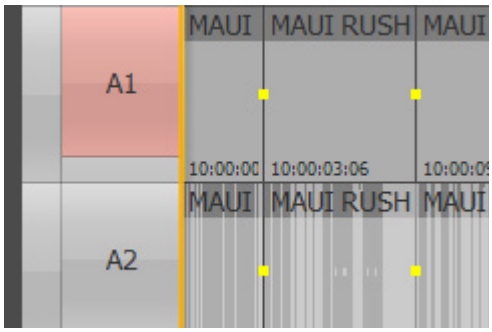
Enabling & Disabling Audio Output



On the right of the Application Bar there is an **aud** box. This controls the audio output. If the **aud** box is enabled, it highlights pink and audio is output to external speakers. To enable/disable audio output simply press on the **aud** box. Enabling or disabling the **aud** box does not affect the audio if the clip is saved, played-out or published.

Note that if the audio is disabled using the 'aud' box, the PPM meter is not visible.

Enabling & Disabling Audio Track Boxes



Tap on the track filter boxes (**A1**, **A2** etc) to enable/disable audio tracks. Only enabled tracks (highlighted pink) are affected when any subsequent processes are applied. Any disabled tracks remain unaffected. This is useful when performing video-only or audio-only editing.

Note that if none of the tracks have been selected, any process that is applied affects all the tracks.

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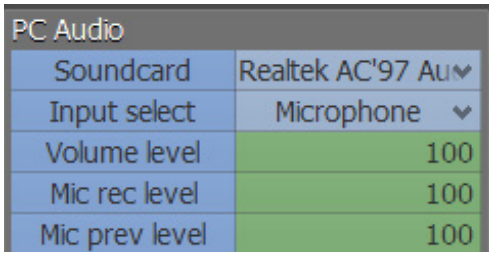
PC Audio Settings

The <F1> Configuration Window includes a number of PC audio setting controls.



The PC Audio menu is used to set up the sound blaster card for voice-overs and FX loop purposes. To access these tools press <F1> and navigate to the **PC Audio** section.

In order to record a voice-over a microphone must be connected to the Mic-In input jack and **Microphone** should be selected from the blue **Input select** scroll box. Before recording a voice-over adjust the **Volume level** and check that the **Mic rec level** (record) and **Mic prev level** are set to the required level.

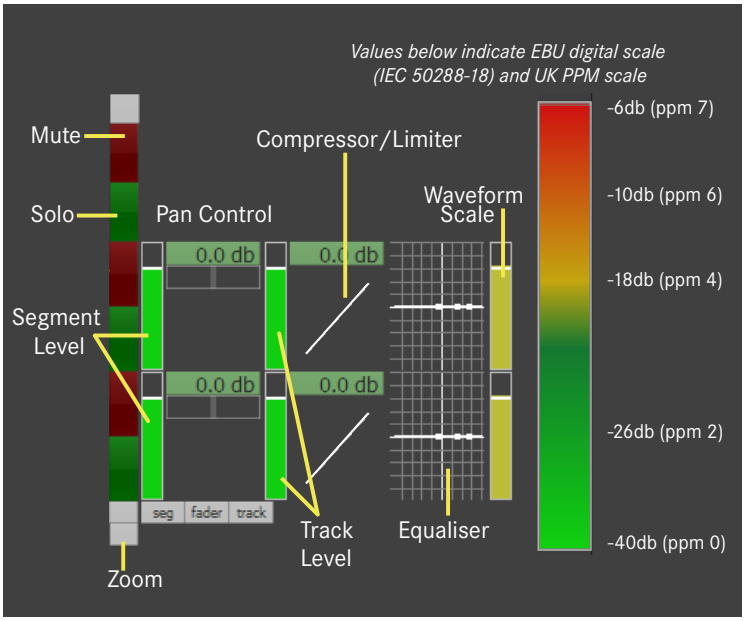
Note that if no microphone is connected then the 'VO' box does not appear.

Hidden Audio Options

Many of the audio management tools are located in 'hidden' menus. There are two hidden audio menus available on the timeline that allow audio levels to be controlled and channel settings to be assigned.

You can access the additional audio options by doing the following:

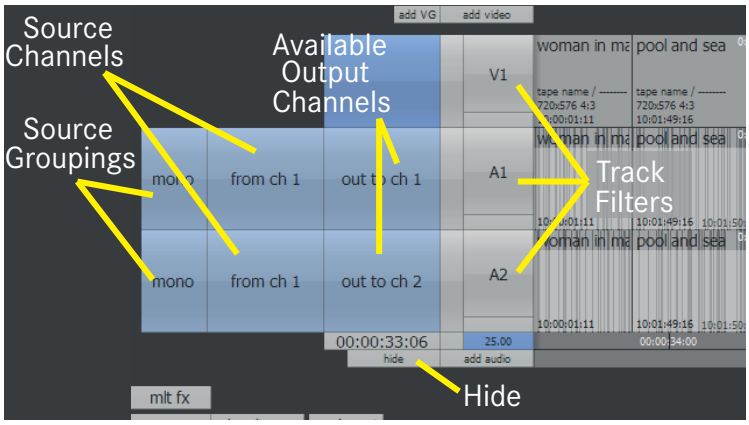
Access Audio Level Controls



1. Press on the Mute/Solo boxes to the right of the timeline.
2. Drag to the left.
3. Drag to the right to hide the menu.

This image displays each of the tools that are available within the Audio Level hidden menu. Descriptions of each function can be found throughout this guide.

Access Audio Channel Controls



1. Press on any track filter box (eg **V1**, **A1** etc).
2. Drag to the right to reveal additional audio input/ output controls on the left.
3. Drag to the left to hide the menu.

This image displays each of the tools that are available within the Audio Channel hidden menu. Descriptions of each function can be found throughout this guide.

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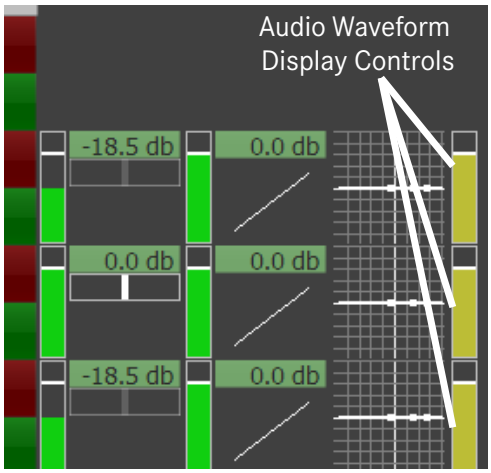
Audio Waveform Display

The audio waveform display can be used to accurately evaluate the audio track between video frame boundaries.

How to Access the Waveform Display Controls

The controls for the waveform display are located in the hidden menu to the right of the timeline. To access the controls do the following:

1. Press and hold the Mute/Solo boxes to the right of the timeline.
2. Drag the cursor to the left.
3. To close the hidden menu, press and drag to the right.



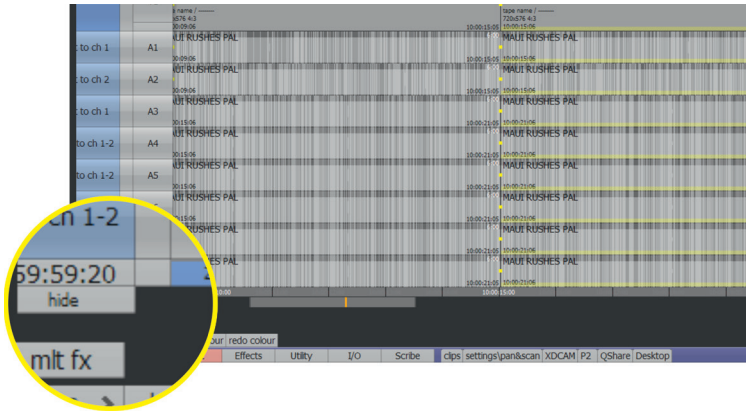
The Waveform Display Controls can be used to adjust the scale of the waveform display on the audio tracks.

To adjust the scale of the waveform display press and drag up or down on the scale bars. Drag up to increase the vertical scale of the waveform display on the associated track. Drag down to decrease the vertical scale of the waveform display.

Note that on server held clips, waveform only displays after the clip has been locally cached, ie played through once. Purging the cache removes the waveform until the clip has been played through again.

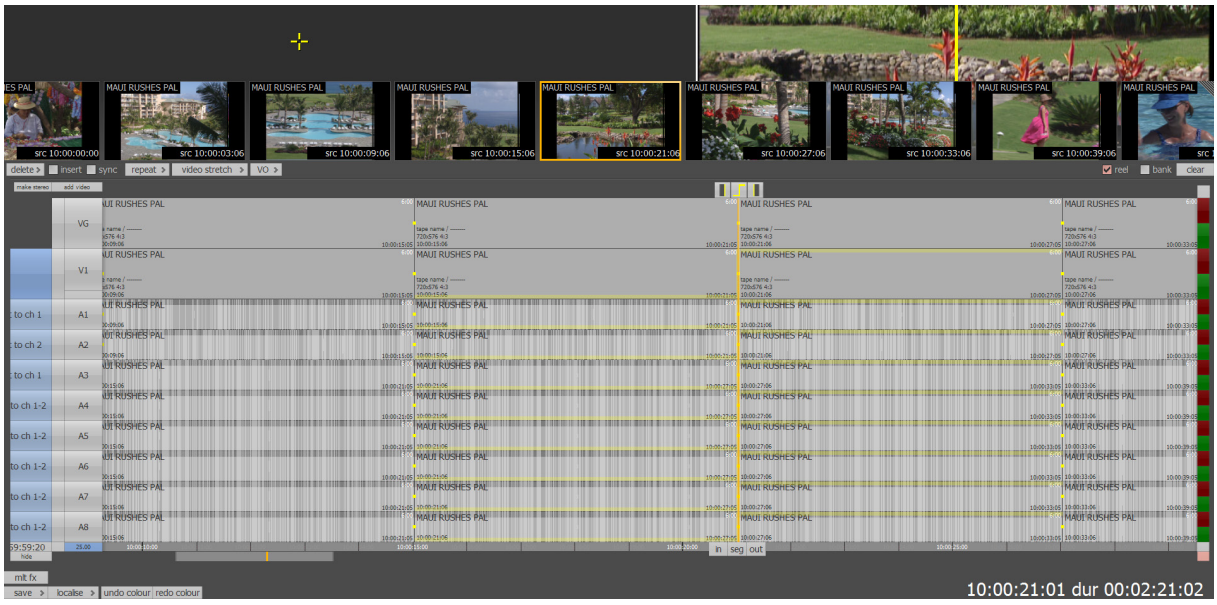
Hide

The **hide** box can be found by accessing the hidden menu to the left of the timeline. It is located at the bottom of the output channel boxes.



The **hide** box allows you to temporarily 'hide' the audio tracks as well as all audio tools and controls. Hiding the audio tracks can be a useful way to temporarily create more space on the interface in order focus on video editing.

For example this is a typical interface with multiple audio tracks, a single video track, a video guide track and the Reel open. Without the **hide** box enabled the interface may become crowded:



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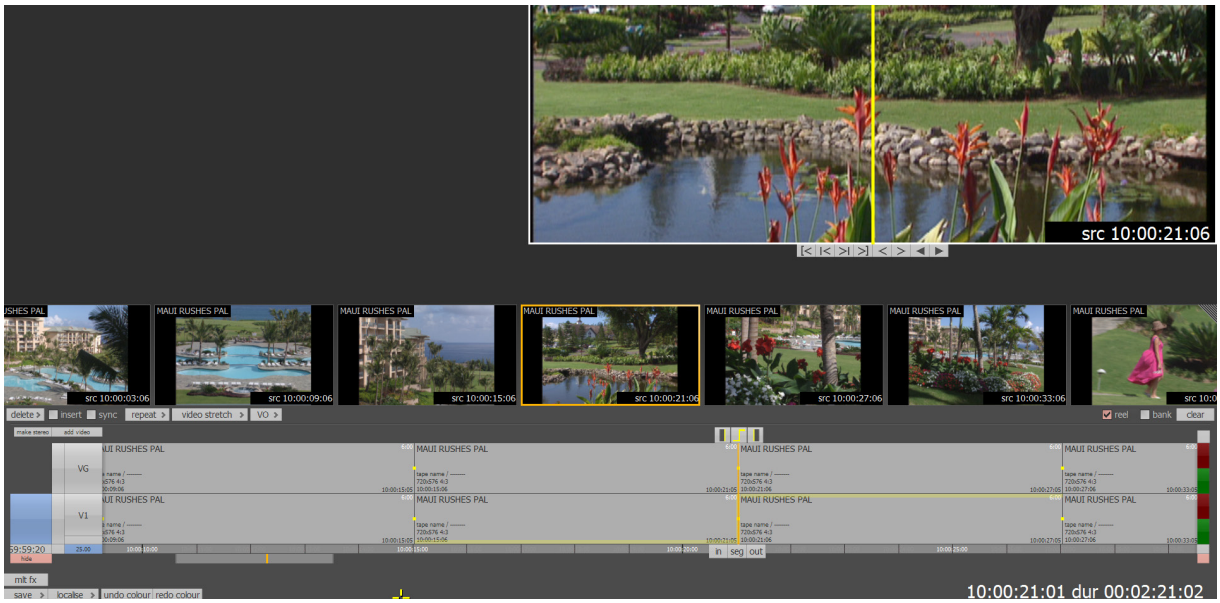
With **hide** enabled, the audio tracks are temporally hidden from the interface, creating a less crowded workspace:



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Managing Audio

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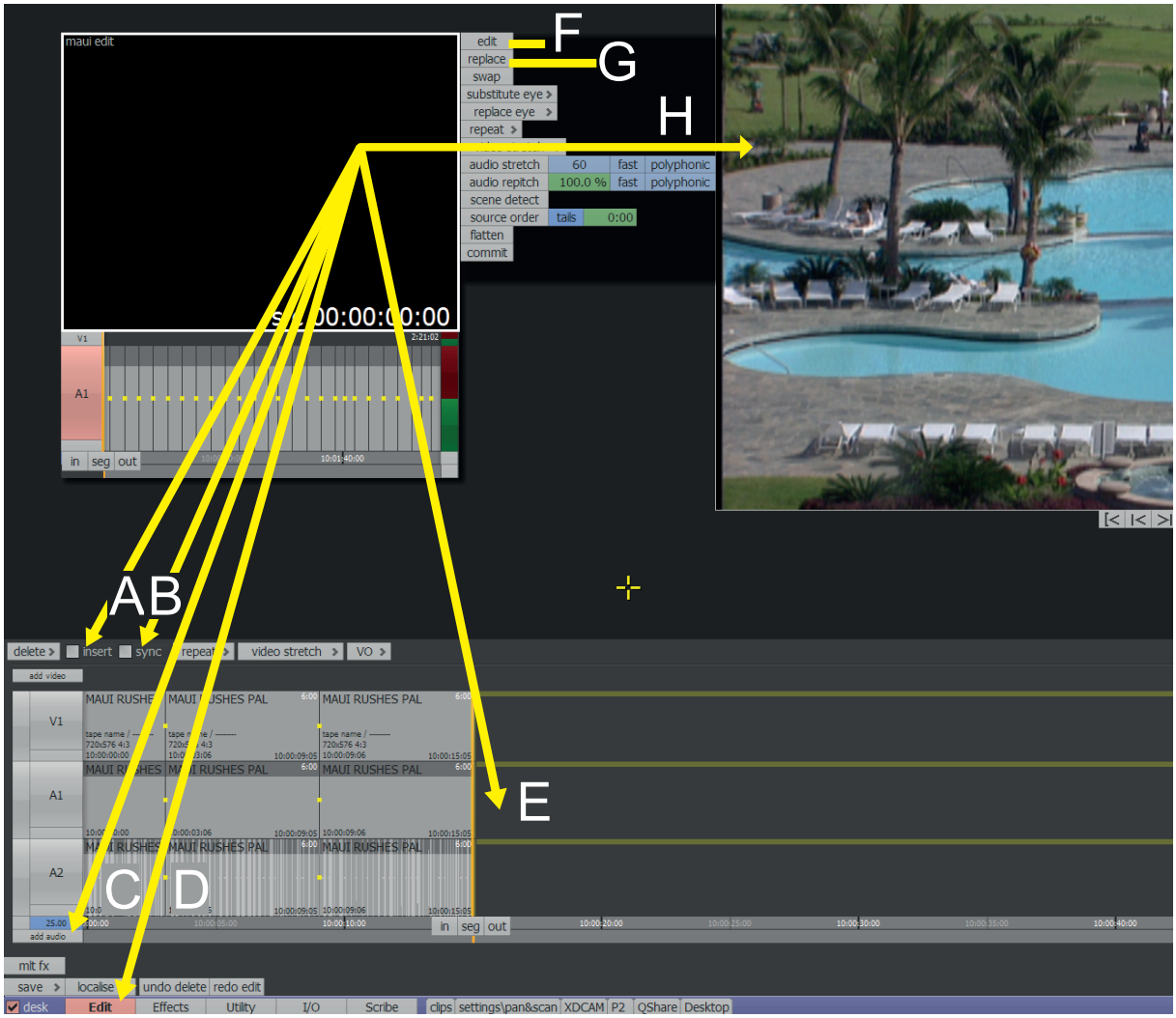
Adding Audio to the Timeline

You can add whole tracks of audio, individual audio segments, multiple audio segments or marked sections of audio tracks. Clips can be placed on the timeline in a number of ways depending on user preference and workflow.



Loading Audio Tracks onto the timeline.

To load an audio track, first ensure that the correct track filters have been selected (if necessary). For example, if you want to add a single audio track from a Floating Clip to the timeline, select the track you want on the Floating Clip.

If you want to place the new audio track on a specific track on the timeline, eg **A2**, select the **A2** track filter on the timeline. To get the audio clip onto the timeline choose the most suitable option from the following:

Insert Edit

(See Arrow A) The **insert** tick box at the top-left of the timeline can be used to prevent the new clip overwriting any existing frames on the timeline. With **insert** selected, the new clip splits the existing clip and places the new media in between. This is referred to as an 'insert edit'.

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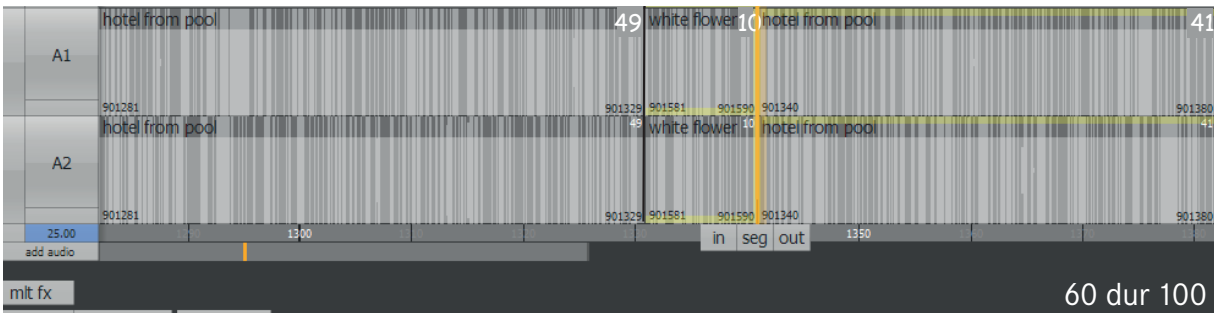
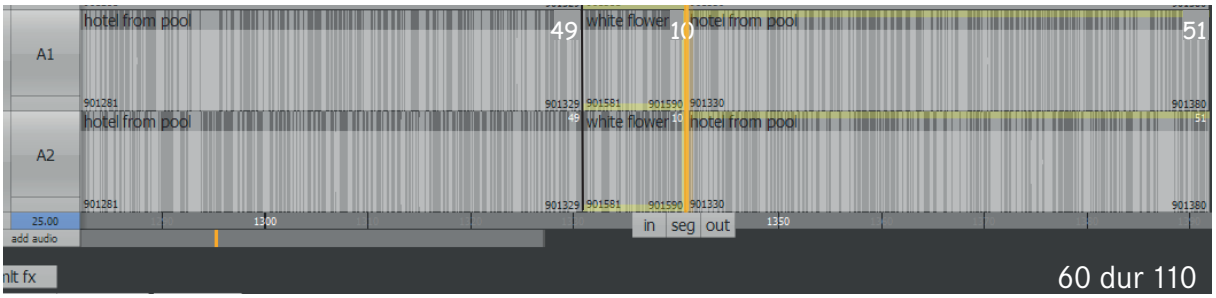
For example, if you had a 100 frame audio clip on the timeline and wanted to add a 10 frame audio segment to the middle of this. Without **insert** selected the resulting clip would remain 100 frames long with the new 10 frame segment overwriting 10 frames of the original clip.

With **insert** selected the resulting clip would be 110 frames long, retaining all the frames; old and new. It would keep all of the original frames and insert the 10 new frames at the current cursor point.

Without **insert** selected:



With **insert** selected



To insert an audio clip into a timeline edit, do the following:

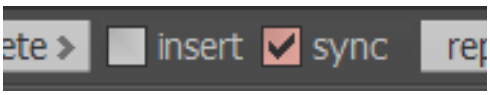
1. Select the **insert** tick box or press <Insert> on the keyboard.
2. Move the cursor to the required timeline position.
3. Select the audio track or segment to be inserted.
4. Drag and drop the clip to the correct position on the timeline or press <Return> on the keyboard. Alternatively, drag and drop the clip directly over the **insert** box (which highlights yellow).

The new clip is inserted at the cursor position, splitting the existing segment and moving it along the timeline accordingly.

Note that if in and out points have been set on a Floating Clip, only the selected segment is inserted. If in and out points have not been specified the whole clip segment is inserted.

Pressing <Ctrl>+ <Return> performs an 'insert edit' regardless of whether the 'insert' function is enabled or disabled.

Synchronising Frame Position ('Sync')



(See Arrow B) If you tick the **sync** box, an audio clip can be placed onto the timeline with its cursor point matching the cursor point on the timeline.

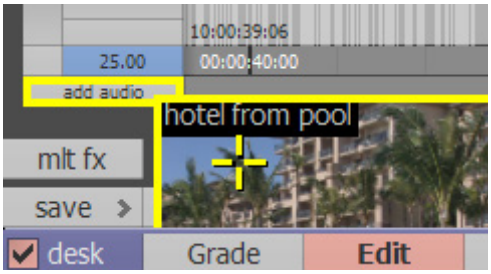
This is often useful when synchronising audio to video. For example, video of a car race can be loaded onto the timeline. You can then find an independent clip with audio of a fast car and sync it to the video. To use the sync feature, do the following:

1. Select the **sync** tick box.
2. Select the audio track or segment to be synced.
3. Place the cursor on the required point of both the timeline clip and the Floating Clip where you want the frames to match, eg as the car races past the camera and appears at its loudest.
4. Press <Enter>.

The audio is inserted at the marked point of the timeline video clip.

Using the Add Audio box

(See Arrow C) Pressing the **add audio** button inserts a new blank audio track.



Dragging a clip onto **add audio** (which highlights yellow) creates a new audio track and loads the clip's audio at the current cursor position.

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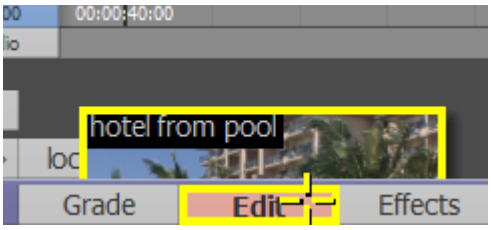
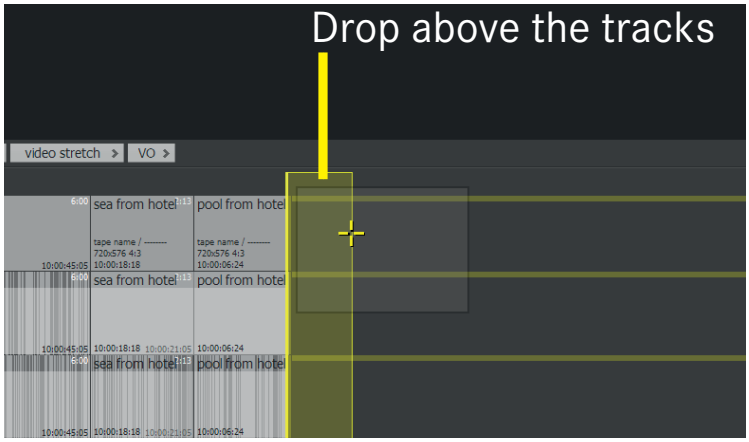
Using the 'Edit' Tab



(See Arrow D) You can drag an audio clip onto the **Edit** tab (which highlights yellow) on the Application Bar to load the clip on the timeline. This replaces any clip currently on the timeline clips. Note that the Edit Application does not need to be open to do this.

Loading ALL Tracks via the Timeline

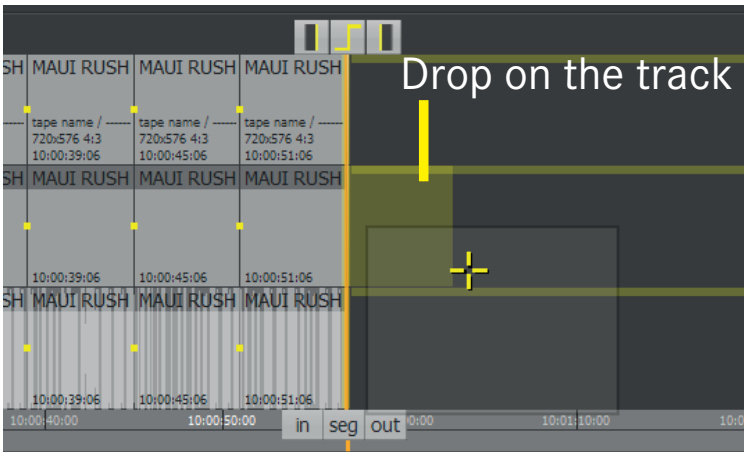
(See Arrow E) Dragging an audio clip directly over the timeline activates a yellow highlight, indicating where the clip is to be placed and which tracks it is to occupy. If an edit already exists on the timeline the new clip overwrites any frames that it overlaps.



Dragging a clip and hovering in the dark grey area directly above the video track ensures all tracks are transferred to the timeline.

Move left or right to find the required position then drop the clip to insert all tracks of the clip.

Loading a Single track via the Timeline

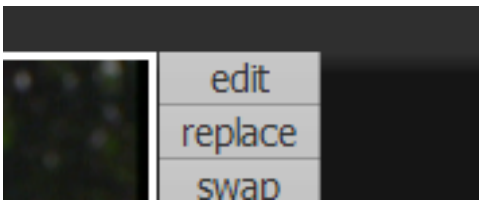


(See Arrow E) Holding the clip directly on top of an audio track highlights only this track and only the corresponding audio track is placed onto the timeline when it is released.

Loading using the Floating Clip 'More' Menu

You can load audio tracsk from a Floating Clip's 'more' menu in two different ways:

a (See Line F) Open the more menu located outside the top-right of each Floating Clip.



Press **edit**. This places the clip (or selected section of the Floating Clip) at the current timeline cursor position.

b (See Line G) Open the more menu located outside the top-right of each Floating Clip. Press **replace**. This places the clip (or selected section of the Floating Clip) on the timeline, replacing any existing edit on the timeline.

See the Desktop Editing User Guide for more information about the 'more' menu and working with Floating Clips.

Loading using the Edit Window

(See Arrow H) You can drag a clip from a bin or from the desktop onto the Edit Window to load the clip on the timeline at the current cursor position. If an edit already exists on the timeline the new clip overwrites any frames that it overlaps.

Insert Multiple Clips

Multiple clips can be dropped onto the Edit Window by pressing the <Ctrl> key and selecting the required clips or by drawing a lasso around them, and then dragging and dropping onto the Edit Window.

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Deleting Audio from the Timeline

Clips can be deleted from the timeline in a number of ways depending on user preference and workflow.

Delete an Audio Track

To delete an audio track, do the following:

1. Select the **delete** box located at the top-left of the timeline area. When selected the **delete** box highlights pink.
2. Select the Track Filter box of the track that you want to delete.

The track is removed from the timeline edit. Any audio tracks below the deleted track are moved up the track stack. For example if **A1** is removed from the timeline, track 2 is moved up and becomes **A1**, track 3 becomes **A2** etc.

Delete Multiple Audio Tracks

To delete multiple audio tracks, do the following:

1. Select the tracks you want to remove by pressing on the relevant Track Filter boxes.
2. Select the **delete** box located at the top-left of the timeline area. When selected the **delete** box highlights pink.
3. Press one of the selected Track Filter boxes. All of the selected tracks are removed from the timeline edit.

Delete an Audio Segment

To delete an audio segment, do the following:

1. Double-click on the audio segment you want to delete. Alternatively, hold <Shift> and press on the segment. The yellow 'Move' menu is opened.
2. Press on the 'Move' menu **delete** box to delete the selected segment.

Delete Multiple Audio Tracks

To delete multiple audio segments, do the following:

1. Double-click on one of the audio segments you want to delete. Alternatively, hold <Shift> and press on the segment. The yellow 'Move' menu is opened.
2. Hold down <Ctrl> and press on each additional segment to be deleted. Each selected segment highlights yellow.
3. Press the 'Move' menu **delete** box to delete the highlighted segment.

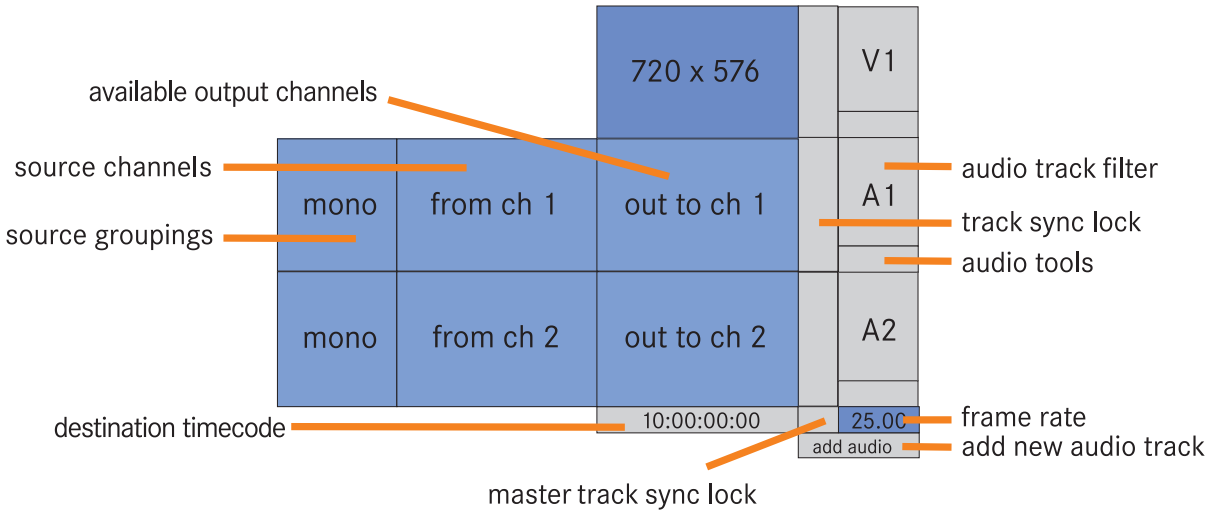
Managing Audio Channels

Assigning Audio Channels

To display the following functions, you must tick the 'Audio Channel Selection' check box in the <F1> Configuration Window's 'Clips' menu.

By default the system uses the audio assignments that were set when recording. To change the audio channels for a clip, do the following:

1. Access the hidden audio channel controls (left hidden menu).
2. If available, you can use the 'Source Groupings' box to change the groupings options by pressing on the scroll box and selecting the desired grouping. See 'Audio Grouping Options' for more information.
3. You can use the 'Source Channels' box to specify the input channels. Press on the **from ch...** scroll box and select the required source channel.
4. You can use the 'Output Channels' box to specify the output channels. Press on **out to ch...** scroll box and select the required output channels.



Audio Grouping Options

The Source Groupings scroll box displays the source grouping of the clip, eg **mono**, **stereo**, **quad** etc. For example, to split a stereo track out to two separate mono tracks select **mono**.

Grouping options are as follows:

Grouping Options	Description
mono	An individual audio channel (eg 1, 2, 3, 4 etc).
stereo	A pair of audio channels (eg 1 & 2 or 3 & 4 etc).
quad	A group of 4 audio channels (eg 1, 2, 3 & 4 or 5, 6, 7 & 8 etc).

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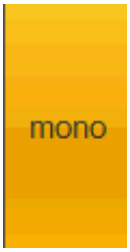
Grouping Options	Description
8 channel	A group of 8 audio channels (eg 1, 2, 3, 4, 5, 6, 7 & 8 or 9, 10, 11, 12, 13, 14, 15 & 16).
16 channel	A group of 16 audio channels (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 & 16).

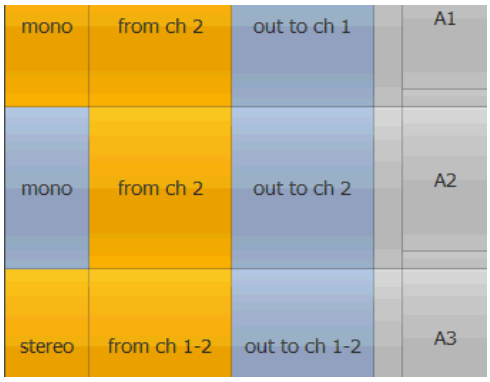


If the grouping box is orange this indicates that the clip has a mixed source grouping. For example, **mono** set in an orange box may indicate a mixed mono/stereo source.

'From' & 'Out To' Options

The Source Channels boxes control which source channels are used and the Output Channels scroll boxes control which output channels are used.

from ch... This box displays the available source channels. When there are no audio segments selected, this setting affects the whole audio track.



If the timeline audio segments are originally from mixed channel sources, or a segment's source has subsequently been changed, this box turns orange (see screen shot to the left) to indicate that the setting is not global for the whole track.

out to ch... This box displays the available output (ie speaker) channels. The output channel settings made via this box always affect the whole track (ie an individual segment cannot be changed).

A stereo audio track can be split by right-clicking on either the track box (eg A2) or the actual audio track and selecting 'split audio'.

Standalone workstations with AVIO3 or eVidIO cards support 16 channels. sQ workstations support a maximum of 8 channels (the maximum that the sQ Server supports).

Too Few/Too Many Channels

If there are too few input channels for the selected output channels, the most appropriate input channel is automatically duplicated. For example, if a mono track is output to channels 1 & 2 then the mono track is placed on both channel 1 and channel 2. If a stereo track is output as a quad (eg channels 1, 2, 3 & 4) then the stereo pair 1 & 2 also appear on channels 3 & 4.

If there are too many input channels for the selected output channels, unused channels are ignored.

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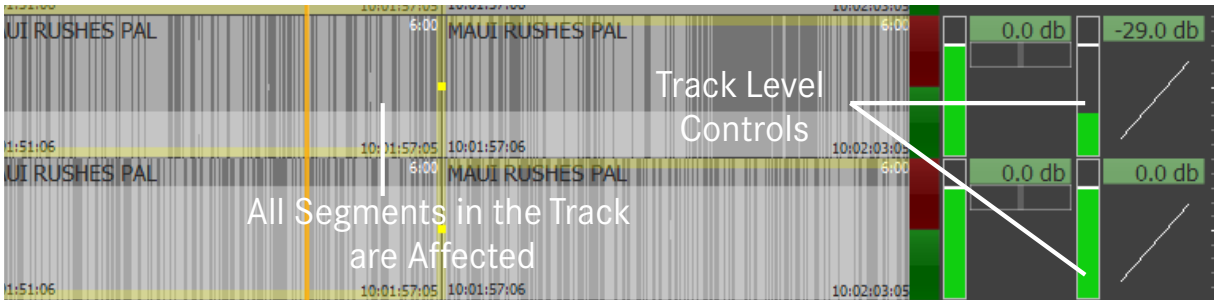
Managing Audio Levels

Audio level indicators are revealed via the hidden menu to the right of the timeline. These allow the audio levels to be adjusted for each audio track and/or each individual audio segment.

Track or Single Segment Level Adjust

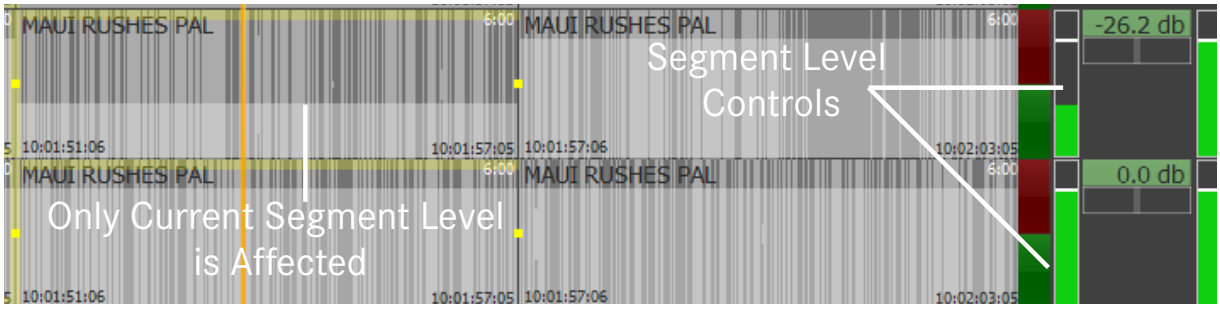
The Track Level and Segment Level boxes are calibrated in decibels. A value of 0.0 indicates that the audio level is the same as when recorded, a positive value indicates that the level has been amplified from the original level and a negative value indicates that the level has been reduced from the original level.

Audio Track Adjust



To adjust the level of a whole track, press on the 'Track Level' control and drag up to increase the volume or down to decrease the volume.

Current Audio Segment Adjust



To adjust the level of the current audio segment, press on the 'Segment Level' control and drag up to increase the volume or down to decrease the volume.

Multiple Segment or Track Adjust

The following methods can be used to adjust the levels across multiple tracks or segments simultaneously.

Multiple Track Adjust

To adjust the level across multiple tracks, do the following:

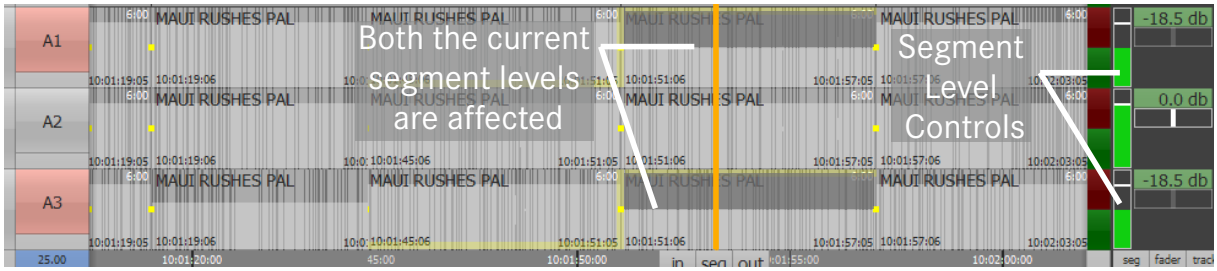
1. Use the Track Filter boxes to select the audio tracks you want to be adjusted (eg A1 and A3).
2. Hold down the <Shift> key. This ensures each of the selected tracks are included when the levels are adjusted.
3. Press on the Track Level indicator for either of the selected audio tracks.
4. Drag up to increase the volume or drag down to decrease the volume.

By holding <Shift> during this process the levels of each of the selected tracks are adjusted simultaneously.

Multiple Segment Adjust

To adjust the level of a segment across multiple tracks, do the following:

1. Use the Track Filter boxes to select the audio tracks that include the segments you want to adjust (eg A1 and A3).
2. Place the cursor on the segments you want to adjust. (See screenshot below).
3. Hold down the <Shift> key. This ensures each of the current segments of the selected tracks are included when the levels are adjusted.
4. Press on the Segment Level indicator for any of the selected audio tracks.
5. Drag up to increase the volume or drag down to decrease the volume.



By holding <Shift> during this process the levels of the current segments from each of the selected tracks are adjusted simultaneously.

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Audio Level Controls in the 'Audio Tools' Box

Audio levels can also be adjusted by selecting the 'Audio Tools' box on the required audio track filter (eg **A1**).

The Audio Tools box enables audio editing automatically on the audio tracks.

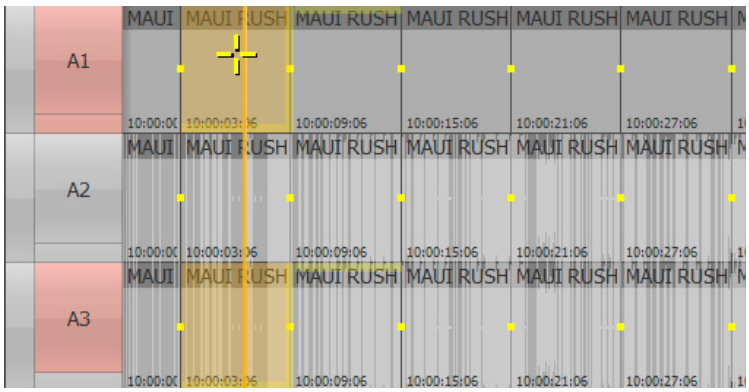
To adjust audio using the Audio Tools box, do the following:

1. Select the Audio Tools box for the audio track you want to edit.
2. Hover over the segment you want to edit. The segment highlights orange.
3. Press on the segment and drag up to increase the volume. Drag down to decrease the volume.

Multiple Segment Adjust

With the Audio Tools box enabled, segment audio levels can be adjusted simultaneously across multiple tracks. To adjust the level of a segment across multiple tracks, do the following:

1. Use the Track Filter boxes to select the audio tracks that contain the segments that need to be adjusted (eg A1 and A3).
2. Select the Audio Tools box of one of the selected tracks (eg **A1**)
3. Hover the cursor on the segment you want to adjust. It must be a segment on the track that has Audio Tools enabled. The segment highlights orange.



4. Hold down <Shift>. All of the current segments across the selected tracks are highlighted orange. (See screenshot)
5. Press on the segment you originally highlighted. In this example, the segment on **A1**.
6. Drag up to increase the volume or drag down to decrease the volume. Each highlighted segment across the selected tracks is adjusted.

Holding down <Ctrl> has the same effect as having the Audio Tools enabled. This is useful if you need to quickly adjust an audio process.

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Audio Editing Tools

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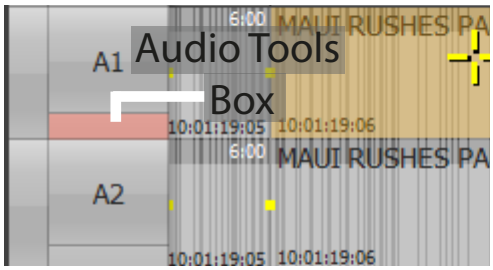
Audio Tools Box

Enable Audio Tools

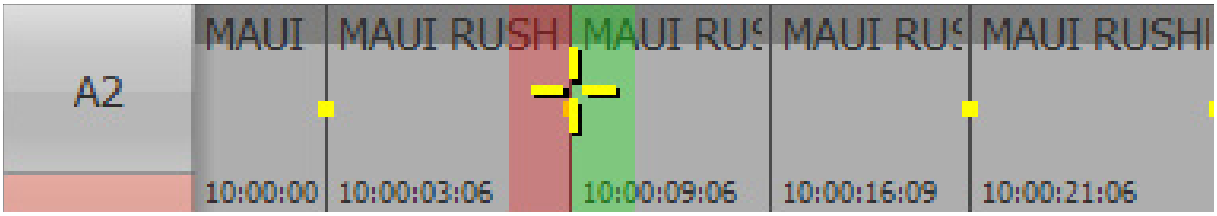


You can manage audio levels and create fades directly on the timeline using the audio tools. To enable the audio tools, select the small grey box found below each audio track filter. When enabled, the box highlights pink.

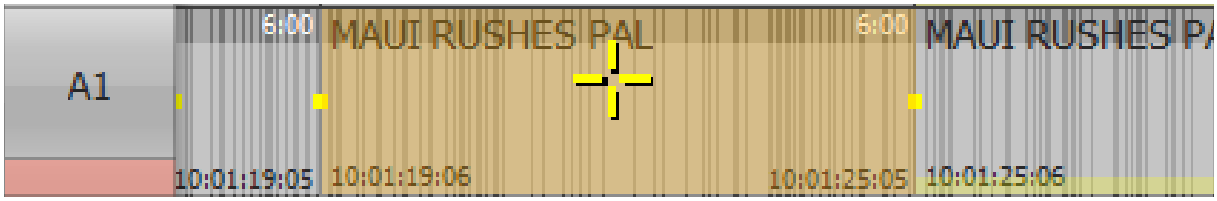
You can also enable audio tools can also be enabled by pressing and holding <Ctrl> while hovering directly over the audio track.

With the audio tools box enabled or with <Ctrl> held down, audio highlights appear when you hover the cursor over audio tracks. The type and colour of highlight differs depending on where the cursor is hovered over the track: over an audio edit point or an audio segment.

When hovered over an audio edit point, a red bar is displayed on the outgoing shot, and a green bar on the incoming shot:



When hovered in the middle of an audio segment the segment highlights orange:

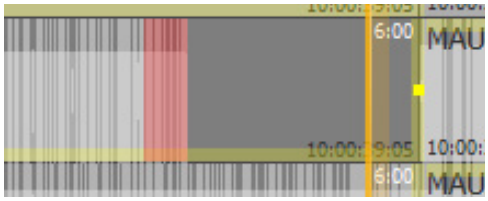


Audio In/Out Points

With audio tools enabled you can change the in point and out points of a segment's audio. To change the audio in and out points, do the following:

1. Hover over the edit point to reveal the red and green bars. Make sure that the bars are a solid colour (a gradient colour produces a fade in/out effect).

2. Press in the middle of either the red or green bar and drag it left or right to advance or delay the audio.



For example, in this screenshot, the out point has been brought forward on the outgoing segment, leaving a section of silence between that and the next segment.

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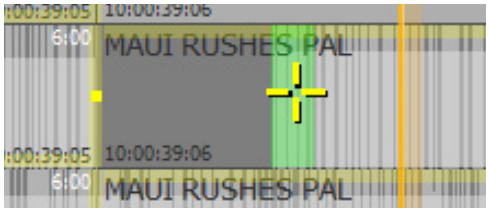
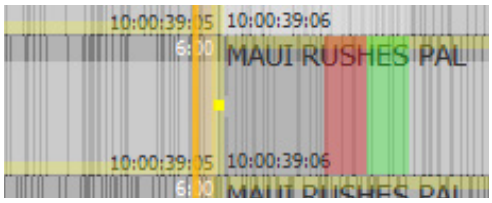


In this screenshot, the in point of the incoming segment has been delayed, leaving a section of silence between that and the previous segment.

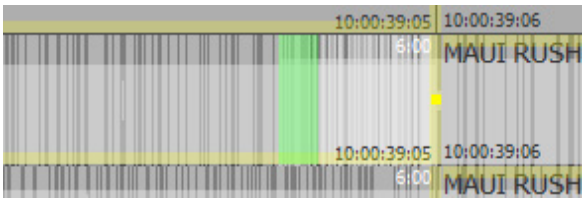
Alternatively, both the in and the out point can be moved simultaneously by ensuring that the cursor is hovered directly over the cut point (both the in and the out bars should be visible).

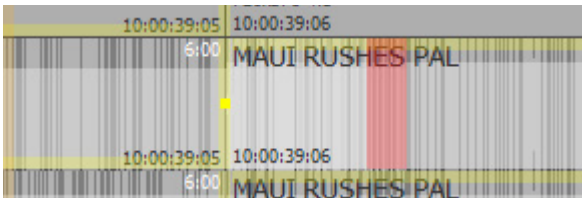


Now when you press on the bars and drag left or right, the in and out points move together

Overlapping In & Out points

Audio in and out points can also be made to overlap. For example, the in point of one audio segment can be dragged forward past the out point of the previous segment (as seen in the first screenshot). Or you can drag the out point of one audio segment past the in point of the next segment (as seen in the second screenshot):





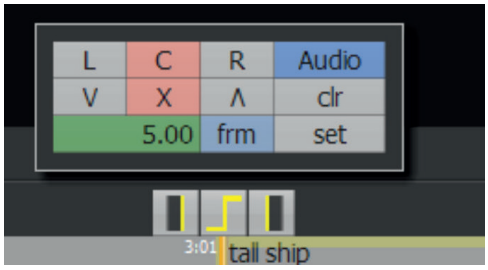
Holding down <Ctrl> has the same effect as having the Audio Tools enabled. This is useful if you need to quickly adjust an audio process.

Audio Transitions (Fades)

Audio transitions (fades) can be applied to any audio edit point using either the audio transition menu or the audio tools.

Audio Transition Menu

How to Access the Menu



To access the Audio Transitions menu place the timeline cursor at an edit point on the audio track then press <F6>. Alternatively double-click on an edit point on the audio track.

The menu appears as a pop-up above the timeline. You can close the menu by hovering in the top-right of the pop-up and pressing the X

Note that any changes affect the selected audio tracks or, if no tracks have been selected, all tracks are affected by any changes, so use the audio track filter boxes (A1, A2 etc) as required.

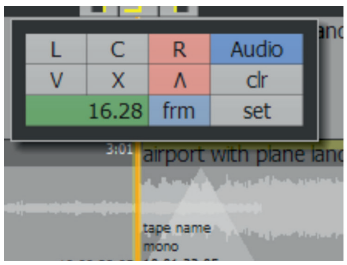
How to Use the Menu

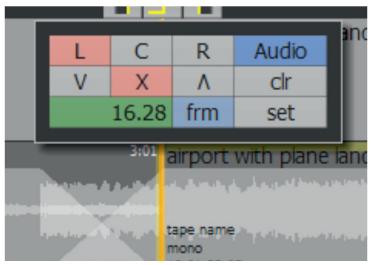
The following options allow you to define the position and type of the audio transition.

Option	Description
L	(Left) The fade starts before the edit point (at a point within the in tail of the current clip) and stops at the edit point.
C	(Centre) The fade is centred around the edit point (starting and stopping within the audio tails).
R	(Right) The fade starts at the edit point and stops after the edit point (at a point within the out tail of the current clip).
V	(Down) The first clip is faded-down before the second clip is faded-up.
X	(Cross) This is an audio cross fade.
Λ	(Up) The second clip is faded-up before the first is faded-down.

The green numerical box defines the total duration of the audio fade either in frames or milliseconds (select **frm** or **mS** from the scroll box).

Press **set** to confirm the audio fade or **clr** to clear it.





The type of fade and its position is represented visually by the highlighted shape around the edit point on the timeline. (See the examples on the left.)

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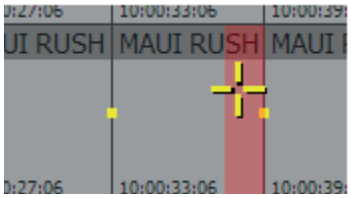
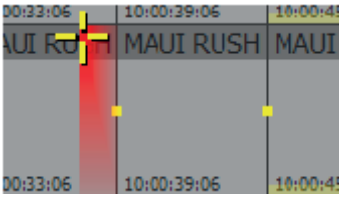
Using Audio Tools

With the Audio Tools box enabled, audio transitions can be manually added directly on the timeline. Hover over the edit point that you want to add the transition to. The red and green in and out bars appear (see 'Audio Tools Box' earlier in this chapter).

When the cursor is hovered over the red and green bars two different functions are available.





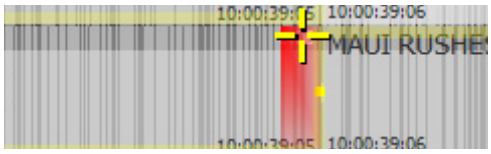
If the bars are solid in colour (as in first screenshot) then the audio in and out points can be moved (see 'Audio In/ Out Points' previously in this chapter).

However if the bar has a gradient (as in second screenshot) then the fade function is enabled. Hover the cursor towards the top of the bar to activate the fade function.

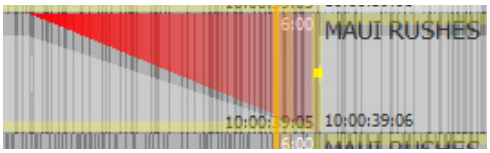
Fades

To create a fade in or out with the audio tools enabled, do the following:

1 Hover over the edit point that you want to add the fade to.



2 Hover the cursor towards the top of either the out point (red) or in point (green) until the bar displays a gradient colour.



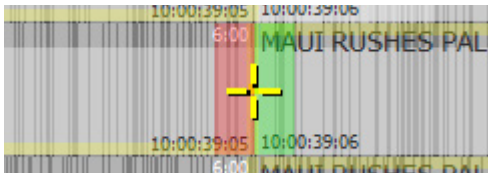
3 Press and drag left (for the out) or right (for the in) along the audio segment.

The result is a gradual fade out (as seen in the screenshot) or fade in. The further you drag the bar, the longer the fade.

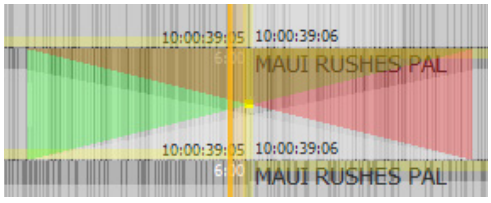
Crossfades

To create a cross fade with the audio tools enabled, do the following:

1 Hover directly over the edit point that you want to add the cross fade to.



Ensure the cursor is hovered directly over the cut point. You should be able to see both the red and green in and out bars.



2 Press between the red and green bars and drag upwards.

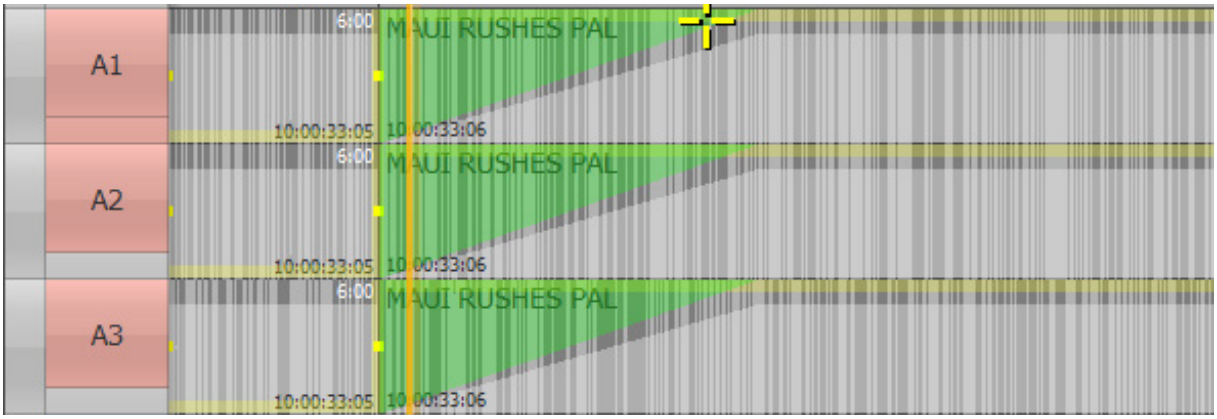
3 Click on the crossfade and slide it along the track to change the position of the fade if necessary.

To clear an audio fade or cross fade, or right-click and select **del seg fades**.

Holding down <Ctrl> has the same effect as having the Audio Tools enabled. This is useful if you need to quickly adjust an audio process.

Fades Across Multiple Tracks

Fades can be applied across multiple selected tracks. To achieve this, do the following:



1 Select the audio tracks to be edited.

2 Select either the Audio Tools box (on any of the audio tracks) or hold down the <Ctrl> key.

3 Hold down the <Shift> key.

4 Perform steps 1-3 of either the 'Fades' or the 'Crossfades' section to add a fade or crossfade across all selected tracks.

Note applying a fade across multiple tracks only works provided that the edit points occur at the same time across all selected tracks

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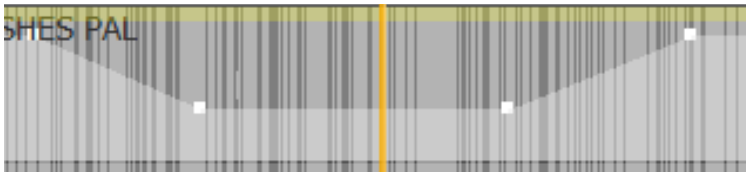
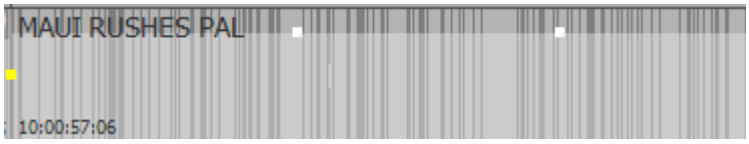
Audio Keyframing



The audio level throughout a segment can be customised and controlled by keyframes.

Insert an Audio Keyframe



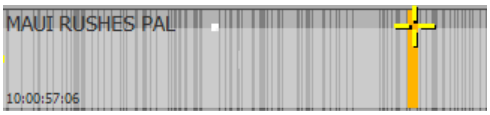
To add a keyframe, place the cursor on the audio segment at the required position and do either of the following:

a Right-click and select **ins level** from the list.

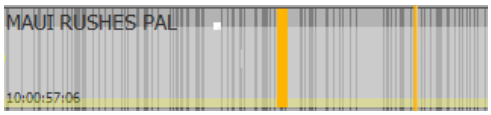
b Press the < / > key. Using this method inserts a keyframe on all audio tracks simultaneously. You can use the audio track filter boxes to control where keyframes are inserted.

Adjust an Audio Keyframe

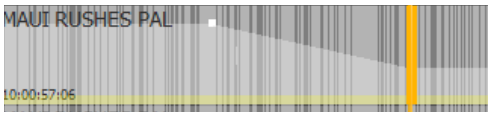
To adjust an audio keyframe enable the Audio Tools box for the track you want to adjust. Alternatively hold down <Ctrl>.



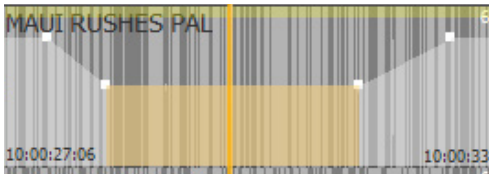
Hover the cursor over the keyframe to be adjusted. An orange bar appears.



To change the position of the keyframe along the segment, press the bar and drag left or right.



To change the volume at this keyframe, press the bar and drag up or down. The audio level between this and other keyframes on the segment is interpolated smoothly.

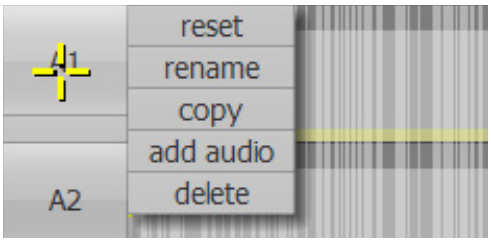


You can also adjust the audio level between keyframes by hovering in the space between the two keyframes until the area of the segment highlights orange. Press and drag up or down to adjust the audio level between the keyframes.

Any keyframe can be deleted by selecting the **delete** box on the top-left of the timeline and then pressing on the keyframe. Alternatively, right-click on the keyframe to be deleted, then select **del level** from the list.

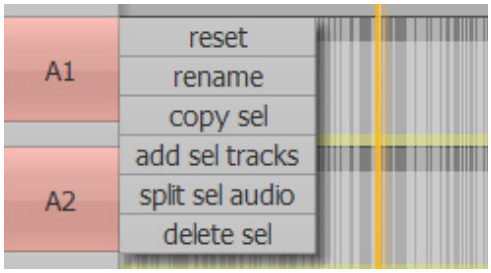
Audio Track Filter Tools

A number of additional audio tool options can be accessed by right-clicking on the audio track filter boxes.



The options include the following:

Option	Description
reset	Restores the vertical scale of all tracks to the default.
rename	Allows you to enter a new name for the current track (note that this name cannot be saved or stored after the session ends).
copy	Copies the current track including any audio settings onto the timeline as a new track.
add audio	Adds a new audio track. The new audio track appears below the current track.
split audio	Separates the audio channels of the current audio track into additional tracks, eg a stereo clip can be split into two individual mono tracks.
delete	Deletes the current audio track.



If one or more audio tracks are selected then the options differ as follows:

Option	Description
copy sel	Copies the selected track(s) including any audio settings onto the timeline as a new track.
add sel tracks	Adds a new audio track under each selected audio track.
split sel tracks	Separates the audio channels of the selected audio track(s) into additional tracks, eg a stereo clip can be split into two individual mono tracks.
delete sel	Deletes the currently selected audio track(s).

Please note that if both video and audio tracks are selected. The 'copy sel', 'add sel tracks' and 'delete sel' operations apply to all selected video tracks as well as all selected audio tracks.

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Additional Audio Segment Tools

A number of additional audio tool options can be accessed by right-clicking directly on the audio track/segment you wish to adjust.

These options include the following:

Option	Description
ins level	Inserts an audio keyframe.
split audio	Separates the audio channels of the current audio track into additional tracks, eg a stereo clip can be split into two individual mono tracks.
del seg levels	Deletes all audio keyframes and levels from the current audio segment. The audio level for that segment returns to its original state.
del seg fades	Deletes all audio fades from the current audio segment.
copy fade-(both/in/out)	Copies the fade settings from the current segment into a buffer. Depending on the type(s) of fade(s) on that particular segment the option either displays **both**, **in** or **out.**
paste fade-(both/in/out)	Pastes any fade settings held in the buffer to the current segment. Depending on the type of fade setting stored in the buffer the option either displays **both**, **in** or **out.**

Copy & Paste Fades

Right-clicking on an audio segment provides the option to copy any fades that appear on that segment.

There are several copy options:

- **a Copy fade-in** – when right-clicking to the right of an edit point
- **b Copy fade-out** – when right-clicking to the left of an edit point
- **c Copy fade-both** – when right-clicking directly on the edit point

To use the copy and paste fades, do the following:

1. Right-click to the left, right or directly on the edit point that needs copying.
2. Select the required copy option from the pop-up menu. The fade is now saved into a buffer.
3. Right-click the audio segment you want to add the fade to.

4 Select **paste fade-in/out/both**.

5 The fade settings are pasted to the segment

Just like the other settings in this pop-up menu, the **paste fade** option is applied across all selected audio tracks. Note that the edit point must occur at the same frame across tracks for the multi-track paste operation to work. This does not work if the edit points are on different frames on different tracks.

In addition to copying between tracks, it is also possible to copy between clips. A fade from the main timeline can be copied to a floating clip, and vice versa.

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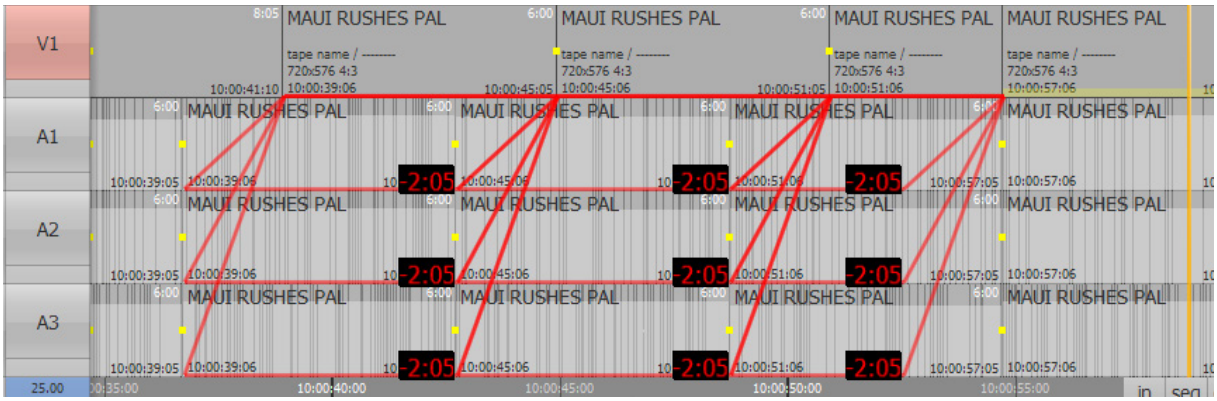
Video/Audio Sync Tool

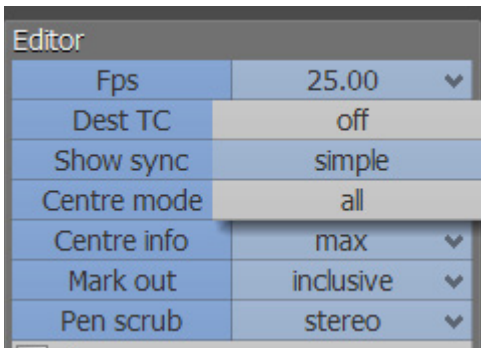
‘Show Sync’ Indication

When audio and video tracks are edited independently of each other, there is a danger of breaking the sync relationship between them. For example, if new frames are inserted (added whilst **insert** is enabled) only to the video track, all the following video frames move along the timeline to make room for the new ones. However, the audio track remains where it is and as a result the audio is out of sync with the video.



The timeline can display the synchronisation of the video and audio segments by displaying sync loss indicators. These appear as red lines joining the original video frames with the original audio frames as well as a numeric value for how far out of sync the video and audio are.

These indicators can be turned on or off from the <F1> Configuration Window.

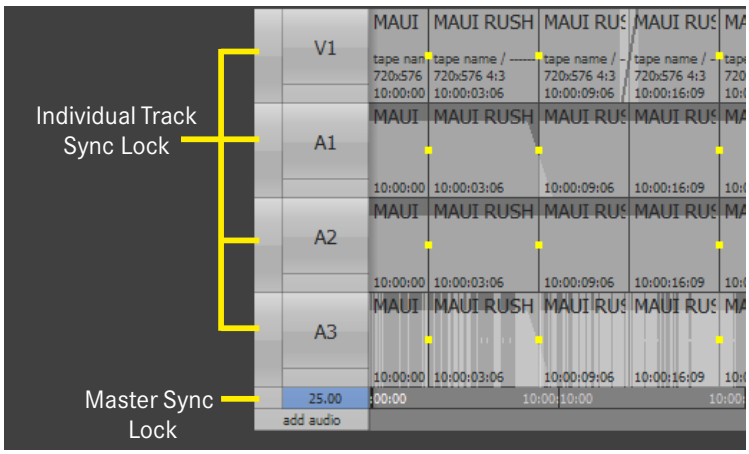


Navigate to the **Editor** section of the window and select **Show sync**. From the drop-down menu select either **off**, **simple** or **all**. Selecting **simple** displays only red lines under the clip segment that has lost video/audio sync. Selecting **all** provides a full display of warnings.

If the audio and video don’t have an original relationship, red lines do not appear when you move the video and audio independently.

Sync Lock

Typically when the content of recorded video and audio are matched (eg a person talking to camera), sync lock must be maintained at all times. Other material such as audio effects tracks, or commentaries from other sources, may need to be slipped to correspond with events on the edit timeline.



Sync lock can be maintained automatically by enabling the 'Master Sync Lock' box in the bottom-left corner of the timeline. When enabled all audio and video track sync locks highlight pink indicating they are locked. You can filter the video and audio tracks that are included in the sync lock by enabling or disabling the individual track sync locks.

When the tracks that have been sync locked are edited, the system automatically forces any corresponding audio or video tracks to do the same. For example, if a video-only segment is inserted onto the video track then any sync locked audio tracks have silence inserted to maintain video/audio synchronisation throughout the rest of the edit. Likewise if a segment of video is removed then the corresponding audio track segment is also removed.

Correcting Broken Sync

When audio/video sync is lost it can be corrected by noting how many frames the track is out of sync by and then sliding the segments accordingly to regain sync.

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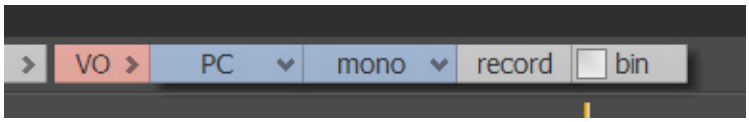
VO (Voice Over) Function

Voice overs can be recorded directly onto the timeline using the **VO** feature located to the top-left of the timeline area.

How to Record a Voice Over

To record a voice over to a specific track, do the following:

1. You may want to add a new audio track specifically for your voice over. To do this, use the **Add Audio** box.
2. Using the Track Filter boxes, select the track you would like to record your voice over on.
3. Ensure the timeline cursor is at the required start point.



4. Press the **VO** box. The **VO** menu is now displayed.
5. Select your audio input source from the first blue scroll box. The Edit Application uses either the XLR or PC (sound blaster) microphone input to record the voice over.
6. Select whether you want to record in **stereo** or **mono** from the second scroll box.
7. You can tick the **bin** box if you want to place a copy of the voice over in the Clips Bin as a separate audio clip.
8. Press **record** to start (or stop) the recording.

There are further options to adjust voice over settings in the **PC Audio** section of the <F1> Configuration Window.

This allows you to select the microphone input source and the microphone recording and preview levels.

If you want to fill a timeline gap, first select the relevant track filter and mark in and out points highlighting the area you need to fill. Place the cursor slightly before the in point and then press **record**. This allows lead-in time and leaves tails under the clips on either side.

Note that if no microphone is connected then the 'VO' box does not appear.

Audio Stretch

You can stretch the audio tracks of any Floating Clip in order to sync with a video track or to match a specific frame rate.

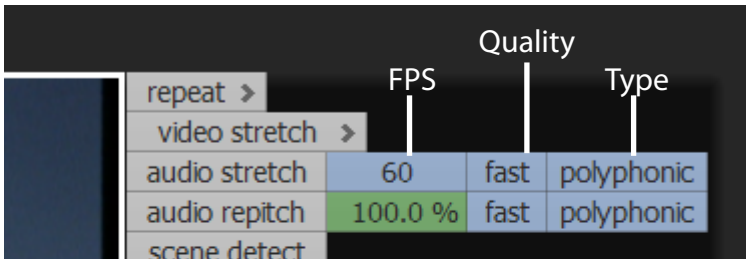
Stretching Audio Tracks

To stretch an audio track, do the following:

1. Access the **more** menu by hovering directly outside the top-right corner of the Floating Clip.
2. The available audio stretch options are displayed to the left of the **audio stretch** box. Do not press **audio stretch** until the required settings are specified.
3. Specify the required settings.
4. Press the **audio stretch** box to start the stretch process.

When complete the resulting clip maintains the original video frame rate but contains the new stretched audio tracks.

Audio Stretch Options



The audio stretch process has a number of options available to suit the type of audio material to be stretched and the desired level of accuracy. (See the table below)

Option	Description
FPS	The FPS (Frame Per Second) scroll box allows the target audio frame rate to be selected (ie, **23.98**, **24**, **25**, **29.97**, **30**, **47.95**, **48**, **50**, **59.94** or **60**).
Quality	The Quality scroll box allows the quality of the stretch to be selected (ie, **fast**, **good** or **best**).
Type	The Type scroll box allows the appropriate type of audio re-sampling and pitch correction algorithm to be applied. Typically **monophonic** is used for voice and **polyphonic** for music.

Note that when using the 'audio stretch' function the track filter boxes cannot be used to protect/enable specific audio tracks.

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Audio Repitch

You can raise or lower the pitch of audio tracks or retune the pitch of an audio track that has been stretched. The pitch can be set between 50% (lower pitch) and 200% (higher pitch).

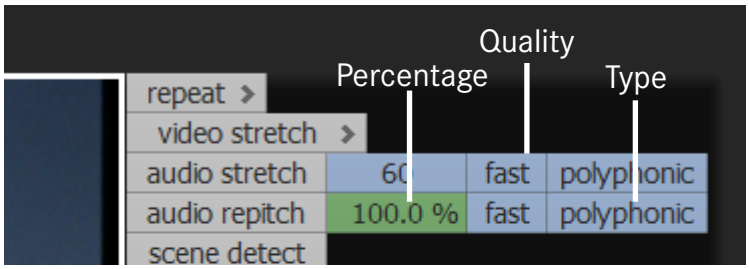
Repitching Audio

To repitch the audio, do the following:

1. Access the **more** menu by hovering directly outside the top-right corner of the Floating Clip.
2. The available audio repitch options are displayed to the left of the **audio repitch** box. Do not press **audio repitch** until the required settings are specified.
3. Specify the required settings.
4. Press the **audio repitch** box to start the repitching process.

When complete the resulting clip maintains the original video frame rate but contains the new repitched audio tracks.

Audio Repitch Options

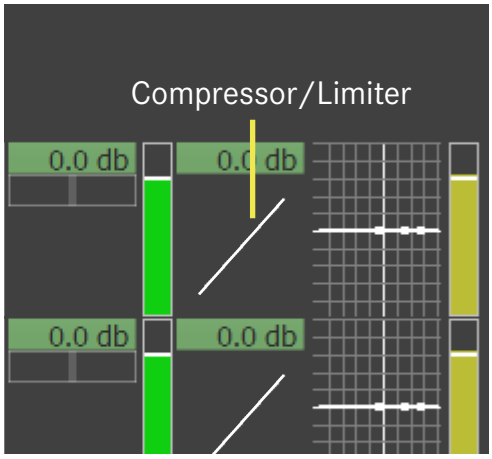


The audio repitch process has a number of options available to suit the type of audio material to be repitched and the desired level of accuracy. (See the table below)

Option	Description
Percentage	The Percentage box allows you to raise or lower the pitch of the audio based on a percentage of the original.
Quality	The Quality scroll box allows the quality of the repitch to be selected (ie, **fast**, **good** or **best**).
Type	The Type scroll box allows the appropriate type of audio re-sampling and pitch correction algorithm to be applied. Typically **monophonic** is used for voice and **polyphonic** for music.

Audio Compressor/Limiter

The Audio Compressor/Limiter tool is accessed within the hidden audio menu to the right of the timeline.

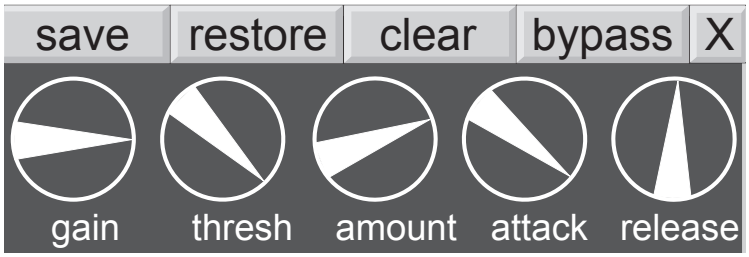


The Compressor/Limiter tool is located to the right of the Track Level control. It can be accessed by pressing on the diagonal line shown in the screenshot.

The Compressor/Limiter tools control the currently selected track only but the settings can be transferred from one track to another.

The compressor provides a form of automatic level control. It attenuates high levels by reducing the dynamic range, making it much easier to control signals and set appropriate audio levels. Limiting is an extreme form of compression, where the output signal is sharply attenuated so that it cannot exceed a particular level.

Compressor/Limiter Tools



When the Compressor/Limiter menu is opened five dials are displayed. These can be controlled directly using the cursor or by pressing on the dials to display green numeric boxes.

The function of each dial is as follows:

Dial	Description
gain	The **gain** control sets the overall output audio level to compensate for the apparent loss due to the compression of audio with a large dynamic range.
thresh	(Threshold) The threshold control sets the level above which compression starts.
amount	The **amount** control sets the compression ratio value.
attack	The **attack** control sets how quickly the compression takes place after the audio level has exceeded the threshold level.
release	The **release** control sets how quickly the compression is turned off after the input audio level has dropped below the threshold level.

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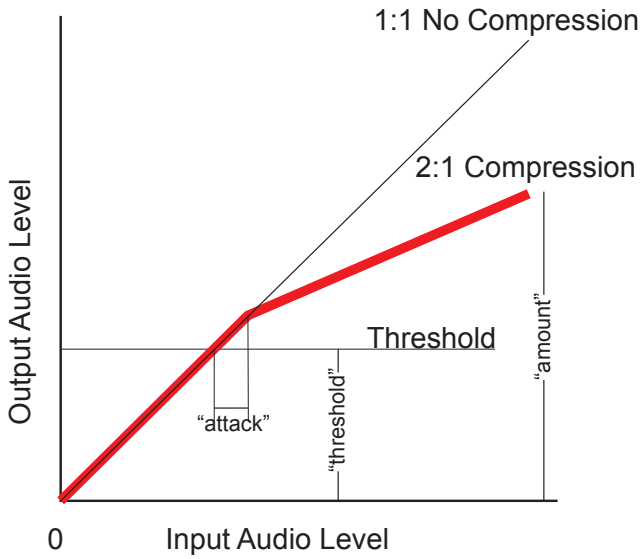


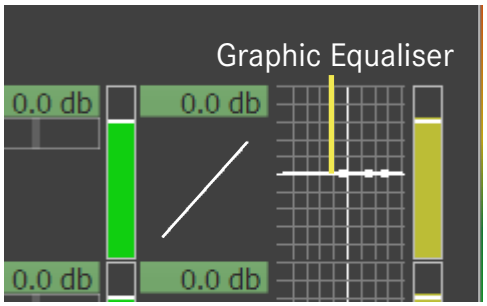
Compression is displayed as a ratio which defines how much of the output audio level is produced for any given input level. A ratio of 1 : 1 means that the audio is unaffected by compression.

Above the compressor/limiter dials are a number of options. Their functions are as follows:

Option	Description
save	The **save** box saves the current settings in a buffer so that they can be applied to other tracks.
restore	The **restore** box applies the settings currently held in the buffer to the currently selected track.
clear	The **clear** box clears the settings of the currently selected track.
bypass	The **bypass** box disables the effect of the compressor/limiter for the selected track.
X	The **X** box in the top-right corner closes the menu.

Graphic Equaliser

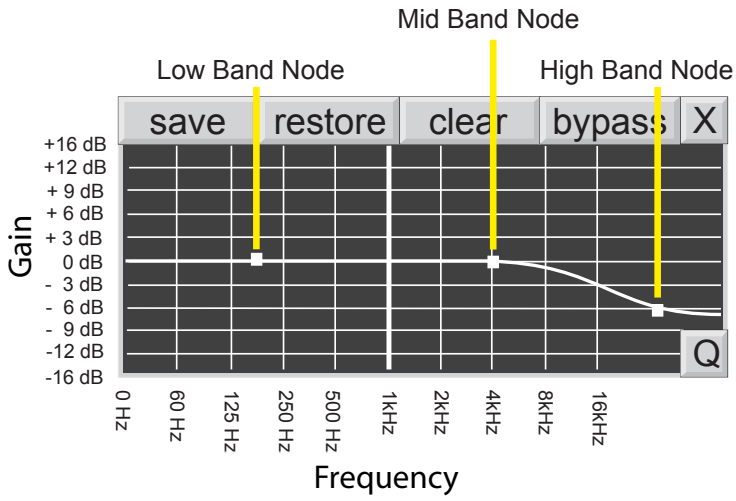
A three band graphic equaliser is provided for each audio track on the timeline. The Graphic Equaliser tool is accessed within the hidden menu to the right of the timeline.



Located to the right of the Compressor/Limiter tool, the Graphic Equalizer is accessed by pressing on the graph area shown in the screenshot.

When the graph area is pressed, the Graphic Equalizer opens in a pop-up.

How to Use the Graphic Equaliser



The graph displays gain along the vertical axis and frequency along the horizontal axis.

The frequency response of the graphic equalizer is shown by the white curve intersecting the 3 white square nodes. The nodes represent the 3 frequency bands.

The centre frequency and gain/attenuation for each of the 3 bands (low, mid and high) can be changed by selecting the individual white nodes on the graph and dragging. Hovering the cursor over the white nodes displays their current values.

Dragging a white node left or right decreases or increases the centre frequency for that band. Dragging the white node down or up attenuates or amplifies the frequencies in the band.

The nominal width of each of the 3 bands is 1000hz, but each band can be adjusted between 100hz and 4000 Hz by selecting the **Q** box and sliding the white node up and down.

By moving the white nodes closer together, you can create high pass, low pass and band stop filters for the audio.

The graphic equalizer settings can be reset by holding the <Shift> key on the keyboard and pressing on the graph with the cursor.

To hear the effect of the 3 band equaliser during set-up it may be necessary to mute or solo individual audio tracks on the timeline.

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Above the graph are a number of options. Their functions are as follows:

Option	Description
save	The **save** box saves the settings of the currently selected graphic equaliser in a buffer.
restore	The **restore** box applies the settings currently held in the buffer to the currently selected track graphic equaliser.
clear	The **clear** box clears the settings of the currently selected track graphic equaliser
bypass	The **bypass** box disables the effect of the graphic equaliser.
Q	The **Q** box then selecting a node on the graph allows the size of the band to be adjusted.
X	The **X** box in the top-right corner on the graphic equaliser closes the menu.

Audio FX Loop

This is applicable only for hardware seats when audio needs to be processed externally, eg through a mixer or graphic equalizer. An FX Loop can be set to do this. The line output from the sound blaster card can be connected to the input of the external device and the output of the external device is connected back to the line input (or other sound blaster input selected in the <F1> Configuration Window).

The audio track to be processed is selected using the green Solo button to the right of the timeline. When the **FX Loop - Record** box is pressed the clip is played from the current frame on the timeline and the selected audio track is routed through the external device; a new audio track is created. Pressing the **Record** box again stops the process. The clip continues to be played and subsequent selections of the **Record** box places the processed audio on new audio tracks.

The value in the green **delay n frames** box can be used to compensate for the static delay in the audio process path to avoid manually matching the new audio position with that of the original.

If the **Bin** box is selected before **Record** is pressed, a copy of the processed audio is automatically saved in the Clips Bin (with the title 'FX loop clip') as well as on the timeline.

When you press publish on an sQ Seat, an audio mix down is performed as part of the publish process. This ensures that audio is processed in a playable format.

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Loudness Metering Plug-in Option

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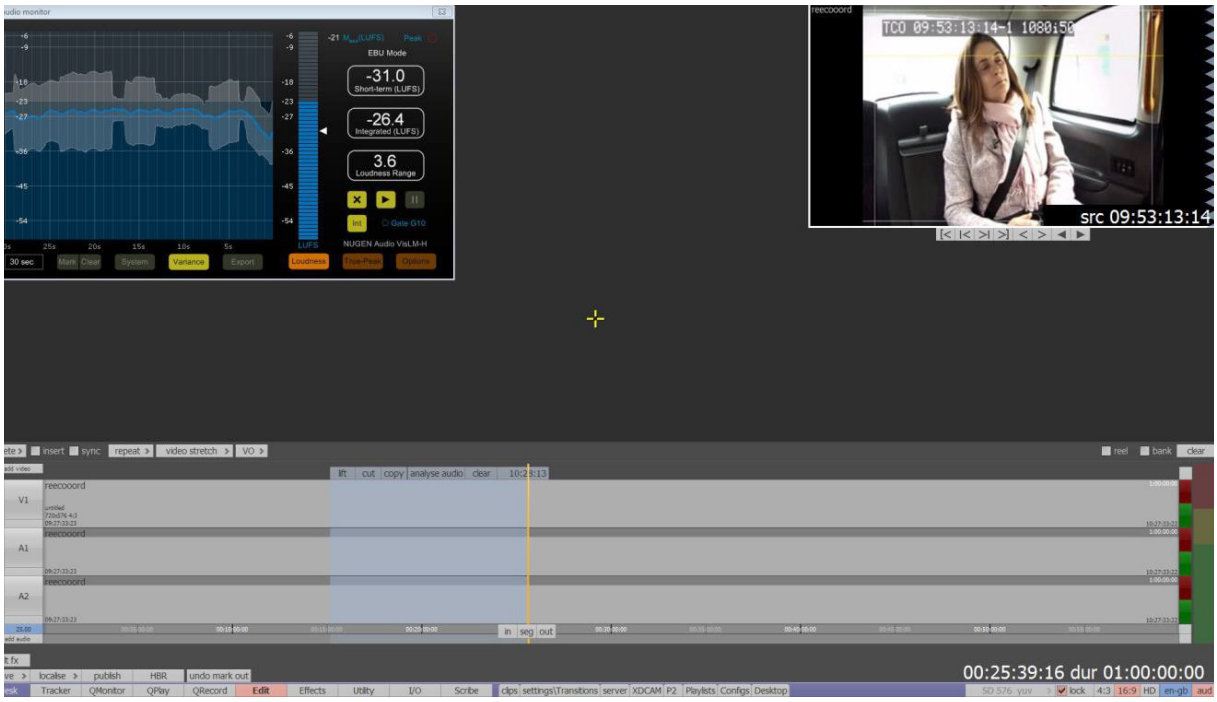
NUGEN VisLM Loudness Metering Plug-in

The NUGEN VisLM loudness meter is an ITU, ATSC and EBU standard compliant loudness meter. It provides broadcasters and post houses with a way to measure, compare and contrast loudness during production, broadcast and post production.



VisLM is available in two versions, VisLM-C (compact) and VisLM-H (history), which are both supported.

VisLM provides several essential parameters for loudness measurement:

- True-Peak Level Metering – the maximum level of the signal.
- Loudness Range - to help decide if and how much dynamic compression to apply.
- Momentary - 'instantaneous loudness' for mixing by ear.
- Short Term Loudness - 3 second time window.
- Program Loudness - long term integrated loudness measurement.

In order to run the VisLM a license is required which can be obtained directly from NUGEN Audio. See Appendix A for more information.

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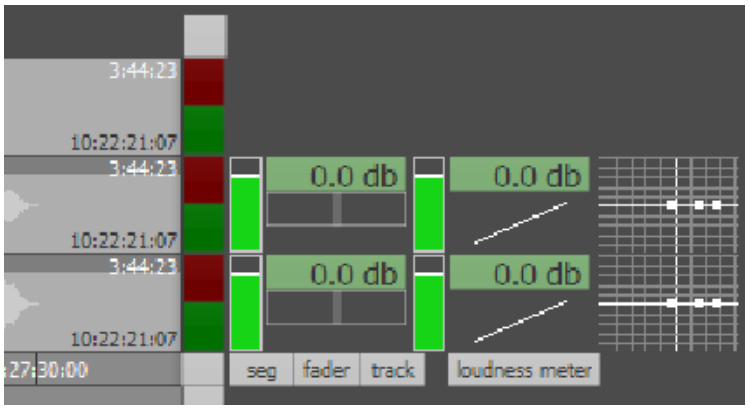
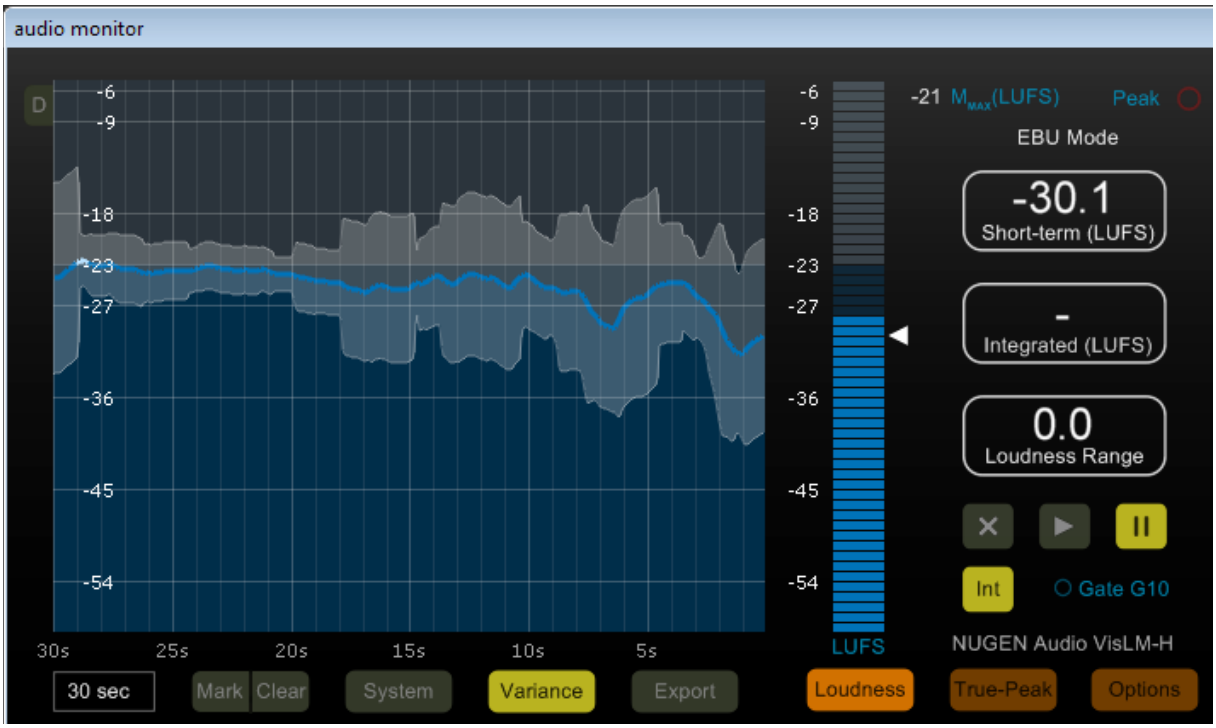
Using the Loudness Meter

If the loudness meter is installed and the configuration set up correctly, then the hidden audio controls to the right of the timeline include a box for launching/hiding the loudness meter window.



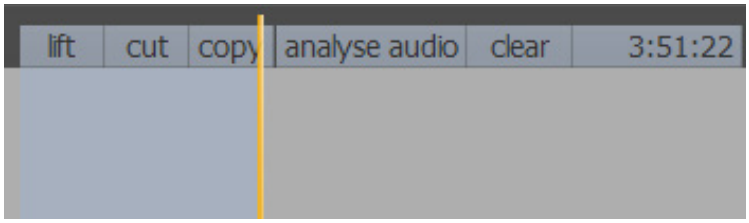
The box is labelled **loudness meter**. Selecting this button opens the Loudness Monitor plug-in in a Windows style window, initially at the top left corner of the UI. The window can be dragged to a new position. It can be moved to a second monitor if necessary.



The picture above shows the NuGen VisLM loudness meter. As the audio on the timeline is played, the graph and meter change according to the loudness of the audio at that point in time. If the play button on the plugin is pressed, it records the loudness and provides an integrated loudness over the period of time until it is stopped.

Deselecting the **loudness meter** box in the hidden audio menu the closes the loudness meter window.

When a VST plugin is installed, a new button - **analyse audio** - is available in the blue Lift Menu when an audio segment is selected.



Selecting the **analyse audio** box, does the following:

a Launches the Loudness Meter window if it's not currently visible.

b Resets the integrated loudness value in the Loudness Meter.

c Starts the Loudness Meter plugin's integrated loudness monitoring.

d Pushes the selected audio at faster than real time.

e When all the audio has been pushed through the plugin, the integrated loudness monitoring is stopped, leaving the loudness meter displaying a loudness value for the selected section of audio.

In order to accommodate different loudness meters, entries have been added into the "Custom Settings\Config" section of the registry for the VSTPlugins project.

The registry entries are "VST Play Parameter" and "VST Reset Parameter", for NuGen VisLM. These need to be set to "Int Play" and "Int Reset".

If a different loudness meter is used, the registry must be modified according to the parameter definitions in the plugin. A list of available parameters is printed in the seat log when the plug-in is instantiated.

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Appendices

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Appendix A

About This Manual

This guide covers software available on some Quantel stand-alone and server-connected systems. It may cover functions or options not available on the system you are using.

This guide was written and published by Quantel. The bottom of each page displays the guide's reference number, eg **2140-57-018** plus a revision letter, eg **B** (B being more recent than A which is the original). The publish date is also indicated in the format **mm/yy**. If you require hard copies of this guide, always quote the reference number, revision letter and title.

2140-57-025 revision	publish date	*ECO (Quantel use only)*	software version
A	**11/13**	**E44973**	**V5.3**

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Notices

Maintenance

WARNING (WM2) SERVICE PERSONNEL – MAINTENANCE AND CALIBRATION WITHIN THE EQUIPMENT ENCLOSURE IS ONLY TO BE CARRIED OUT BY SERVICE PERSONNEL (12/97)

Conventions Used

Symbols

See: Reference to other items in this document or in other documents.

Notes: System, software and workflow points to consider and remember.

Tips: Useful hints and advice when undertaking tasks.

Information: Additional hardware or software information which may be useful.

Cautions: Indicate possible damage to (or misalignment of) the equipment if the indicated statements are ignored or the indicated procedures are not followed correctly.

WARNINGS: INDICATE DANGER TO LIFE AND LIMB IF THE INDICATED STATEMENTS ARE IGNORED, OR THE INDICATED PROCEDURES ARE NOT FOLLOWED CORRECTLY.

Text

<Text>	indicates a specific key press on the QWERTY keyboard.
NN/nn	indicates a value entered on a numeric keypad.
Text/text	indicates either a Quantel control panel function or a Windows/Quantel installation/system setting.

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Quantel sQ Edit, sQ Cut, sQ View, Quantel sQ Edit Plus Platform, Quantel ISA, Quantel Pablo, Quantel PabloNeo, Quantel NeoNano, Quantel iQ, Quantel eQ, iQ Platform, eQ Platform, Resolution Co-existence and Clipnet are trademarks of Quantel Limited.

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This manual is not product specific and may detail features that are not available on all systems.

Helpdesk & Web Support

24 Hour Helpdesk

tel +44 (0)1635 38508* *fax* +44 (0)1635 815892
email 24hour.support@quantel.com

Website & Downloads (manuals, drivers, plug-ins & software)

http://www.quantel.com go to support–downloads (login required)

* calls may be recorded for training & quality control purposes.

NUGEN VisLM Plug-in

A license is required to run the NUGEN VisLM. Quantel customers should purchase licenses direct from NUGEN Audio by either:

a Purchasing the product from their online shop, clicking the hot-link within NUGEN VisLM itself.

b Making a purchase from an authorised reseller.

Any support or licensing issues relating to NUGEN VisLM should be directed to NUGEN customer support:

http://www.nugenaudio.com/support.php

http://nugenaudio.com/licensing.php

Or by emailing:

support@NUGENaudio.com

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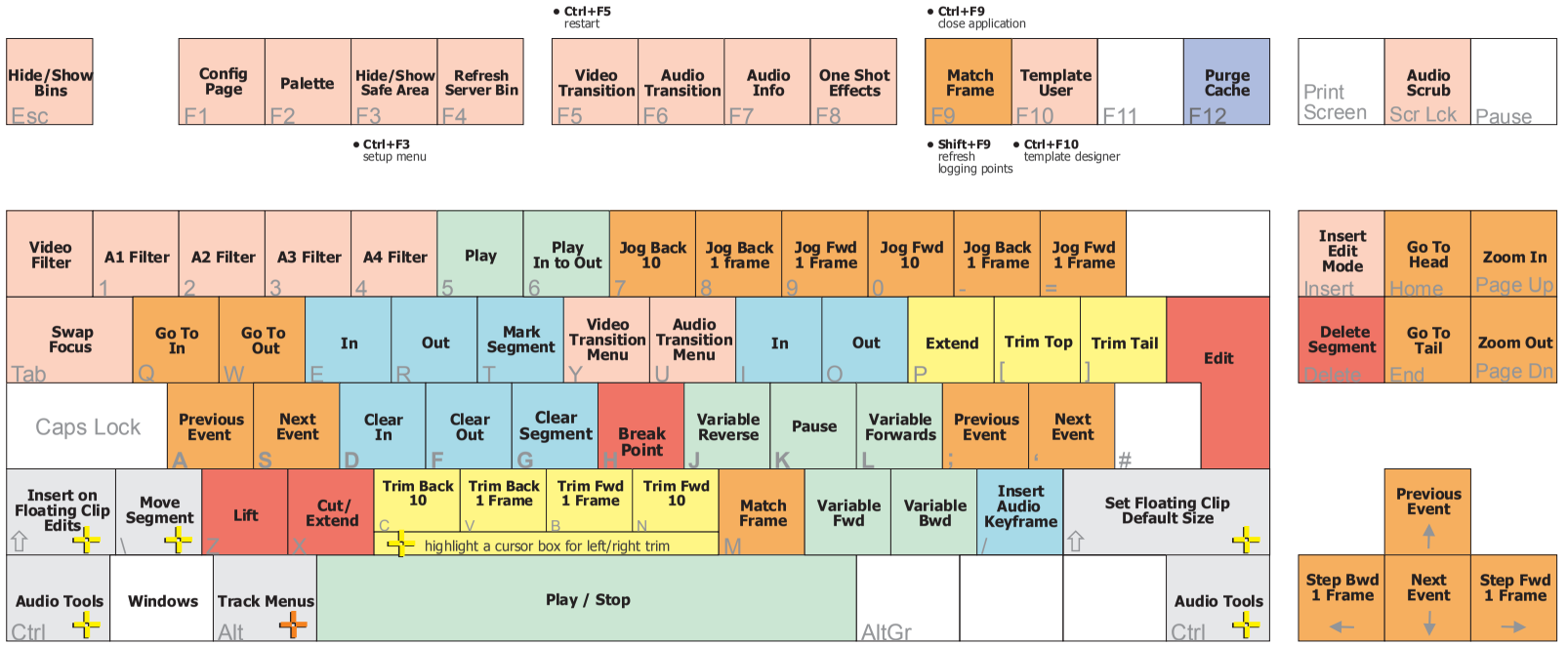
Appendix B

Keyboard Shortcuts



- **Ctrl+Z** undo
- **Ctrl+R** redo
- **Ctrl+A** toggle track filters
- **Ctrl+P** publish
- **Ctrl+Shift+Home** default layout
- **Ctrl+Shift+T** Server Bin clip name pop-up
- **Ctrl+Shift+S** select Server Bin 'areas' box
- **Ctrl+Shift+B** focus on Server Bin
- **Ctrl+Shift+F** focus on Edit timeline
- **Ctrl+Return** show Server Bin clip docked to Edit Window
- **Ctrl+Shift+Return** show Server Bin clip docked to Edit Window with history

- **Windows+D** Windows desktop
- **Shift+** ↓ or ↑ adjust audio level on segment
- **Ctrl+Shift+** ↓ or ↑ adjust audio level on all segments in track
- **Ctrl+** ↓ or ↑ move Server Bin clip selector
- **Alt+** ← or → bwd/fwd bin focus in nested bins
- **Ctrl+** ← or → bwd/fwd1 second
- **Shift+** ← or → bwd/fwd 10 frames
- **Ctrl+Shift+** ← or → bwd/fwd 10 frames

- **Alt+Tab** scroll through Windows applications
- **Alt+S** save clip (or segment) in the Clips Bin
- **Alt+Return** single/double clear timeline
- **Alt+Insert** solo top-most selected video and audio track
- **Alt+V** show/hide voice over controls
- **Alt+B** start/stop voice over recording

To access a function showing this cursor icon, hold the key down and then tap with the pen or left-click with **the mouse**

To access a function showing this cursor icon, hold the key down and then tap with the pen or right-click with **the mouse**

• More button functions

Editing keyboard map

Shortcuts marked with an '*' do not work when MLT FX is open.

Configuration Window

Keyboard Shortcut	Function
<F1>	Opens/closes the Configuration Window.

Layout

Keyboard Shortcut	Function
<F3>	Displays/hides the default safe area in the Edit Window.
<Ctrl>+<⇧>+<Home>	Switches to 'default layout', which forces the following actions: Launch Edit application; clear timeline; close MLT FX; delete all Floating Clips; remove copies of Server Bin (but not original); dock Server Bin with Clips Bin; focus on Server Bin; move bins to top-left of desktop and resize to 35% of screen width; change bin view to 'title' (ie not 'browse'); clear clips docked to Edit Window.

Editing

Keyboard Shortcut	Function
<Tab>	Toggles focus between the timeline and the Floating Clip.
<Ctrl>+<⇧>+<F>	Switches focus to timeline.
<Alt>+<Return>	Performs single clear of timeline: press twice to double clear the timeline (ie resets timeline horizontal/vertical scale, number of tracks, and default frame rate as set in the <F1> Configuration Window's **Fps** drop-down).
< ` >	Toggles the video track filter (**V1**) on/off on the timeline or Floating Clip, depending on current focus.*
<Ctrl>+<A>	Toggles the video and audio track filters on/off on the timeline or Floating Clip, depending on current focus.*
< \ >	Displays the yellow 'move' menu.*
<Return>	If a Floating Clip or a Clips Bin clip is selected, pressing this key (press twice for Clips Bin clip) places the clip on the timeline at the current timeline cursor position overwriting any overlapping media. If **insert** is ticked (or the <Insert> key pressed), the existing media is split and moves along the timeline accordingly (referred to as 'insert edit'). If **sync** is ticked, a Floating Clip can be placed onto the timeline with its cursor point matching the cursor point on the timeline clip.
<Ctrl>+<Return>	Performs an 'insert edit' regardless of whether the **insert** function is enabled or disabled (see previous <Return> shortcut).
<Insert>	Toggles the GUI **insert** function (ie 'insert edit') on/off.*
<Alt>+<Y>	Toggles the GUI **sync** function on/off.*
<H>	Inserts a edit point at the current timeline cursor position.
<M>	Selects Match Frame mode.*

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Keyboard Shortcut	Function
<Q>	Jumps to the currently selected in point.
<W>	Jumps to the currently selected out point.
<E>, <I>	Marks an in point at the current timeline cursor position.
<R>, <O>	Marks an out point at the current timeline cursor position.
<T>	Marks the current segment selected by the current timeline cursor position.
<D>	Clears the currently assigned in point.
<F>	Clears the currently assigned out point.
<G>	Clears the currently selected segment.
<Z>	Allows the current segment on the timeline to be lifted.* (in MLT FX this toggles zoom levels).
<P>	Extends the end of a clip segment from its current position to the current timeline cursor position.*
<C>	Placing the timeline cursor on an edit point then pressing this key trims back 10 frames from this edit point. If the timeline cursor is placed elsewhere, pressing this key moves the edit point to the current timeline cursor position and trims from there.
<V>	Placing the timeline cursor on an edit point then pressing this key trims back 1 frame from this edit point. If the timeline cursor is placed elsewhere, pressing this key moves the edit point to the current timeline cursor position and trims from there.
<B>	Placing the timeline cursor on an edit point then pressing this key trims forward 1 frame from this edit point. If the timeline cursor is placed elsewhere, pressing this key moves the edit point to the current timeline cursor position and trims from there.
<N>	Placing the timeline cursor on an edit point then pressing this key trims forward 10 frames from this edit point. If the timeline cursor is placed elsewhere, pressing this key moves the edit point to the current timeline cursor position and trims from there.
< [>	Placing the timeline cursor after an edit point then pressing this key trims (ie 'tops') the start of the clip segment to the current frame.
<] >	Placing the timeline cursor before an edit point then pressing this key trims (ie 'tails') the end of the clip segment to the current frame.
<F2>	Displays/hides the paint palette which allows colours to be selected and mixed.
<F8>	Shows/hides the optional one shot image corrector menu.*
<F9>	Selects Match Frame mode.*

Keyboard Shortcut	Function
<F5>, <Y>	Displays the Video Transition Menu that allows a cut, dissolve, wipe or custom transition to be selected. The actual settings used for the wipe, dissolve or custom transition (eg a wipe shape and its position about the edit point) are those previously set in the Trim/Transition Window (see later in this chapter); but these can be changed as required.
<Alt>+<Insert>	Solos the upper selected video and audio track.
<Alt>+<Delete>	Mutes/un-mutes selected video and audio tracks.
<Alt>+<V>	Shows/hides voice over GUI functions.*
<Alt>+<B>	Starts/stops voice over recording.*
<Alt>+<S>	Opens the timeline **save** pop-up: press twice to save current clip to Clips Bin.
<Alt>+<T>	Toggles between **save** pop-up's **clip** and **storyboard** boxes.*
<Alt>+<X>	Closes the **save** pop-up without saving the clip.

Audio

Keyboard Shortcut	Function
< / >	Inserts an audio node.*
<F6>, <U>	Displays the Audio Transition Menu.*
<F7>	Displays the Audio Information Menu.*
<1>	Depending on focus, this toggles the timeline or Floating Clip audio track filter (A1) on/off.*
<2>	Depending on focus, this toggles the timeline or Floating Clip audio track filter (A2) on/off.*
<3>	Depending on focus, this toggles the timeline or Floating Clip audio track filter (A3) on/off.*
<4>	Depending on focus, this toggles the timeline or Floating Clip audio track filter (A4) on/off.*
<Scroll Lock >	Turns on the audio scrub play-out mode that changes the pitch of the audio to match the speed at which the clips are played or re-wound. With Scroll Lock turned off, audio snippet play-out mode is used.*
<Ctrl>+<A>	Depending on focus, this toggles the video and audio track filters on/off on the timeline or Floating Clip.*
<Alt>+<1>	Toggles the MLT FX timeline audio track filter (A1) on/off.
<Alt>+<2>	Toggles the MLT FX timeline audio track filter (A2) on/off.
<Alt>+<3>	Toggles the MLT FX timeline audio track filter (A3) on/off.
<Alt>+<4>	Toggles the MLT FX timeline audio track filter (A4) on/off.
<Alt>+<Insert>	Solos the upper selected video and audio track.

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Keyboard Shortcut	Function
<Alt>+<Delete>	Mutes/un-mutes selected video and audio tracks.

Navigation & Playback

Keyboard Shortcut	Function
<Space Bar>	Starts/stops playing the clip edit currently on the timeline.
<→>	Steps the current frame position on the timeline clip forwards 1 frame.
<⇧>+<→>	Moves forward 10 frames.*
<Ctrl>+<→>	Moves forward 1 second.*
<Ctrl>+<⇧>+<→>	Jumps to last frame.*
<←>	Steps the current frame on the timeline clip backwards 1 frame.
<⇧>+<←>	Moves back 10 frames.*
<Ctrl>+<←>	Moves back 1 second.*
<Ctrl>+<⇧>+<←>	Jumps to first frame.*
<↓>, <S>, < ‘ >	Steps the current frame on the timeline to the next edit point (or next logged event).
<↑> ,<A>, < ; >	Steps the current frame on the timeline to the previous edit point (or previous logged event).
<J>, < , >	Plays the clip backwards from the current frame on the timeline. Repeated presses increase the speed by 1, 2, 4, 8, 16 or 32 frames.
<K>	Pauses the playing clip.
<L>, < . >	Plays the clip forwards from the current frame on the timeline. Repeated presses increase the speed by 1, 2, 4, 8, 16 or 32 frames.
<5>	Plays the clip forwards at normal speed.
<6>	Plays the clip forwards at normal speed from the currently selected in point to the currently selected out point.
<7>	Jogs backwards 10 frames through the clip from the current frame on the timeline.
<8>	Jogs backwards 1 frame through the clip from the current frame on the timeline.
<9>	Jogs forwards 1 frame through the clip from the current frame on the timeline.
<0>	Jogs forwards 10 frames through the clip from the current frame on the timeline.
<Home>	Jumps to the first frame on the timeline.
<Page Up>	Zooms-in on the timeline around the current frame. Repeated presses increase the zoom.
<End>	Jumps to the last frame on the timeline.

Keyboard Shortcut	Function
<Page Down>	Zooms-out on the timeline around the current frame. Repeated presses decrease the zoom.

Undo & Redo

Keyboard Shortcut	Function
<Ctrl>+<Z>	Undoes the last operation.
<Ctrl>+<R>	Redoes the last operation that was undone.

Bins

Keyboard Shortcut	Function
<Alt>+<←>	Moves focus left on nested Clips/Server Bins.
<Alt>+<→>	Moves focus right on nested Clips/Server Bins.
<Esc>	Hides/shows all open media bins on the desktop.
<F4>	Refreshes the Server Bin.
<Ctrl>+<↑>, <↓>	Moves Server Bin clip selector.
<Ctrl>+<⇧>+<B>	Switches focus to Server Bin.
<Ctrl>+<⇧>+<S>	Selects Server Bin 'Areas' scroll box.
<Ctrl>+<⇧>+<T>	Shows Server Bin clip naming pop-up (ie soft keyboard).
<Ctrl>+<Return>	Shows selected Server Bin clip docked to Edit Window
<Ctrl>+<⇧>+<Return>	Shows Server Bin clip docked to Edit Window with history.*

* Shortcut does not work when MLT FX is open.

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Appendices

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